The University of San Francisco

USF Scholarship: a digital repository @ Gleeson Library | Geschke Center

2022

Effects of Teaching Argument to First-Year Community-College Students Using a Structural and Dialectical Approach

Sharon Radcliff

The University of San Francisco

EFFECTS OF TEACHING ARGUMENT TO FIRST-YEAR
COMMUNITY-COLLEGE STUDENTS USING A
STRUCTURAL AND DIALECTICAL
APPROACH

A Dissertation Presented
to
The Faculty of the School of Education
Learning and Instruction Department

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Sharon Radcliff
San Francisco
May 2022

THE UNIVERSITY OF SAN FRANCISCO

Dissertation Abstract

Effects of Teaching Argument to First-Year-Community-College Students

Using a Structural and Dialectic Approach

The purpose of this study was to measure to what extent an experimental method of teaching argument incorporating elements from both Toulmin's (2004) structural approach and Walton's (2013) dialectical approach effects first-year college students' ability to write strong arguments. This experimental instruction used critical questioning as a strategy in building a strong argument, incorporating alternative viewpoints, and creating a dialogue between claims and counterclaims, backed logically by verifiable evidence from reliable sources.

Using the Analytic Scoring Rubric of Argumentative Writing (ASRAW; Stapleton & Wu, 2015) that includes the argument elements of claims, data, counterclaim, counterclaim data, rebuttal claim, and rebuttal data, the efficacy of the experimental instruction method was evaluated by collecting and scoring students' pre- and postoutlines of arguments on topics involving controversial issues and students' argument research-paper outlines. Scores on these three sets of outlines in each class included in the study (Spring n=20 and Fall n=23 2020) were compared to investigate the efficacy of using the experimental instructional approach. The rubric analysis was based on outlines that incorporate the basic elements of a strong argument as defined above, both before and after this instructional method was employed.

The instruction was designed to develop students' understanding of bias in the context of building an argument by helping students learn to explore and integrate

alternative viewpoints, to reflect on their own assumptions, to discover bias in sources, and ultimately to build strong arguments from reliable sources that take more than one perspective into account. The instruction consisted of an interactive lecture and pair and group work on a controversial issue in class.

This study took place at a medium-sized community college in an "extended" 6-unit composition course designed for students needing more support than a traditional 3- or 4-unit first-year English Composition course. The student population of this community college and of this course was very diverse and representative of Northern California's demographics, with many students being first- or second-generation immigrants, from economically disadvantaged backgrounds, the first in their family to attend college, or a combination.

Overall, based on the paired-sample t tests for the pre- and postoutline pair, the pre- and research-paper outline pair on the total scores and on the counter-argument and evidence and rebuttals and evidence scores for both Spring and Fall 2020 classes were statistically significant, except for post- and research-paper outlines for Fall 2022 for total, counter-argument and evidence, pre- and postoutlines, and post- and research-paper outlines for rebuttal and rebuttal evidence. Effect size, as measured by Cohen's d, for pairs that were statistically significant were all large, ranging from 0.80 to 1.26 except for counter-argument and counter-argument evidence for pre- and postoutlines for the Spring 2020 class that were both medium, ranging from 0.58 to 0.65.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

STATEMENT OF THE PROBLEM

Understanding more than one point of view and critiquing and creating arguments are expected learning outcomes for any student engaged in a college-level liberal-arts education (Kuh, 2008). To ensure that students learn these skills early in their college careers, they generally are taught in first-year writing courses in community colleges (for students planning to transfer to a 4-year college) or first-year composition courses at 4-year institutions. Related to writing skills, skills in reading, understanding, evaluating arguments, and information-literacy (especially finding and evaluating sources for arguments) are all interdependent skills integral to promoting student engagement and retention, laying the groundwork for many college institutional learning outcomes (Kuh, 2008).

Many colleges and universities have argument–related writing and information-literacy institutional learning outcomes, and students' ability to master these skills can effect their academic success (Fransen et al., 2013; Oakleaf, 2010). For example, although 70% of colleges and universities have articulated student-learning outcomes at an institutional level, only 54% of all colleges include information-literacy goals (National Council of Teachers of English, 2012). As Graff (2003) stated "This argument literacy, the ability to listen, summarize, and respond, is rightly viewed as central to being educated" (p. 3). The instruction in argument and research becomes even more crucial to students' success in academia when one considers that many students are starting off "behind" and are unable to pass an entry-level writing test and must take basic or developmental English in their first year, whether matriculating at a 4-year or 2-year

institution (National Center for Higher Education and Public Policy, 2010).

For many years, Toulmin's (2003) structural model of argument (claim, warrant (logic), data (evidence), counterargument, qualifier, rebuttal) has dominated college-level teaching of argumentation. A growing trend to incorporate a more dialectic approach or social constructivist approach to the teaching of argument has been developing (Graff, 2003; Newell et al., 2011). The dialectic approach, originating with Aristotle in Ancient Greece, views argument as a dialogue with each side critically questioning the other side, with a goal to either prove the opponent wrong or integrate the stronger elements of both viewpoints into a new claim. Researchers (Nussbaum, 2011; Nussbaum et al., 2018; Nussbaum & Edwards, 2011) have explored the use of this more dialectical approach in teaching students how to understand and evaluate arguments. Nussbaum et al. (2018) explored alternatives to the Toulmin model of argument, such as Walton's dialogue theory and the Bayesian model, which focuses on probability. Nussbaum et al.'s main thesis was that although Toulmin's (2003) structural model is useful, it tends to encourage students to dissect parts of a completed argument, whereas Walton's (2008) dialogue method is more generative of critical-thinking questions relating to the argument's strengths and weaknesses. Nussbaum and Edwards (2011) and other researchers (Nussbaum et al., 2018) used Walton's dialectic method to teach students how to critique, evaluate, and integrate elements of arguments on both sides of a controversial issue in order to construct stronger arguments that incorporated more than one perspective on an issue. Other researchers have linked this dialectical approach to greater use of multimedia and to a more social constructivist pedagogical practice (Newell et al., 2011).

These studies by Nussbaum et al. (2018) and Nussbaum and Edwards (2011), Nussbaum (2011), and Fulkerson (1996) focused on the effect of instruction in argument schema and dialogic argument and critical questioning on student writing in the later stages of writing, that is, revising the rough draft. They tend to by-pass the earlier stages of writing an argument paper -- developing a topic, researching the topic, and evaluating sources -- leading to creating an outline and ultimately to incorporating ideas and evidence from sources into the finished paper. These earlier stages are often taught through collaboration with librarians and may be regarded as important phase of the argument-writing process, as they inform every step of a students' argument-creation process. Indeed, librarians, as information-literacy instructors, increasingly have become concerned with incorporating critical-questioning learning outcomes into their collaborative-instruction designs (Radcliff 2014). Armstrong (2010), for example, discussed how critical-thinking skills were mapped onto information-literacy learning and writing objectives in a cultural-studies class requiring an argument research paper that incorporated alternative perspectives. Other studies (Alfino et al., 2008; Deitering & Jameson, 2008; Diekema et al., 2011; Kobzina, 2010; Lupton, 2008; Mateos et al., 2018) described efforts to integrate an understanding of dialogue, critical questioning, and argument into the research process, by highlighting an understanding of confirmation bias and the need to consider alternative viewpoints at the stage of gathering and evaluating sources for an argument research paper.

The studies mentioned earlier (Alfino et al., 2008; Deitering & Jameson 2008; Kobzina, 2010; Lupton, 2008; Ravas & Stark, 2012) show a growing trend to make information-literacy instruction more focused on developing students' ability to reflect

critically on the research process, especially in evaluating sources and to use both visual and text sources for building arguments. But the instructional methods described have not been studied in a systematic way or applied in different classes or situations. Studies from the library field that incorporate instruction in argument and critical questioning using both textual and visual means, mentioned earlier, encourage further investigation whereas they themselves are primarily descriptive and not empirical. Their claims need to be verified further with a more controlled methodology such as the one provided by the current study.

In contrast, the instruction techniques employed by the argument studies (Nussbaum, 2011; Nussbaum & Edwards, 2011; Nussbaum et al., 2018; Wolfe, 2012) are applicable more readily to a variety of composition courses and topics, but they usually do not address the earlier stages of the argument research process (researching and outlining the argument). So, there is a gap in the literature and a need for empirical studies that investigated the effect of teaching argument schemas, using a dialectical approach that incorporates training students in the critical questioning of argument claims and in the logic and evidence used to support claims from multiple sides of an argument, as they embark on the research and argument outlining phases of the argument writing process.

Purpose of Study

The purpose of this study was to measure to what extent an experimental method of teaching argument incorporating elements from both Toulmin's (2004) structural approach and Walton's (2013) dialectical approach effects first-year college students' ability to write strong arguments. The working definition of a "strong" argument used in

this study, which reflects common ideas in the literature (Wolfe et al., 2008), is an argument that clearly presents a claim backed logically by verifiable evidence from reliable sources and that includes an acknowledgment of counter-arguments and either rebuttals or integration of those arguments in to the claim (Wolfe, 2009). This study is designed to fill the gap in the literature by focusing on teaching argument in a first-year college composition course that connects the researching and writing of arguments emphasizing the importance of critical questioning as a strategy in building a strong argument incorporating alternative viewpoints, creating a dialogue between claims and counterclaims.

This study included the scoring of students pre- and postoutlines of controversial issue arguments and students' argument research paper outlines using the Analytic Scoring Rubric of Argumentative Writing (ASRAW; Stapleton & Wu, 2015) comparison to measure the efficacy of using an experimental instructional approach for teaching argument based on elements from both Toulmin's (2004) structural approach and the Walton's (2012) dialectical approach, using textual and visual material. The instruction was designed to develop students' understanding of bias in the context of building an argument by helping students learn to explore and integrate alternative viewpoints, to reflect on their own assumptions, to discover bias in sources, and ultimately to build strong arguments from reliable sources that take more than one perspective into account. The rubric analysis was based on outlines that incorporate the basic elements of a strong argument as defined above after this instructional method was employed. The pre- and postoutlines of arguments, constructed before and after the experimental instruction were conducted. The instruction involved an interactive lecture, pair and group work on a

controversial issue in class, and a homework assignment requiring students to create an outline of an assigned controversial issue research topic argument that also was scored, using the ASRAW.

This study took place at a medium-sized community college, in an accelerated 5-unit composition course, required for students not going directly into first-year English. The students are very diverse and representative of Northern California's demographics, with many students being first- or second-generation immigrants, from economically disadvantaged backgrounds, the first in their family to attend college, or both. There are many students for whom English is a second language, including some international students. It is important that these students learn argument, including an understanding of bias that they can transfer to subsequent course work in English and other subjects and for the purposes of life-long learning.

Educational Significance

This study is important because it builds on past studies in the argument field (Abdollahzadeh et al., 2017; Nussbaum, 2011; Nussbaum et al. 2018; Nussbaum & Edwards, 2011, Stapleton & Wu, 2015; Wolfe, 2009; Wolfe et al., 2008) that focused on the result of using dialectical (Walton, 2007) and Toulmin-based (2003) model of pedagogy to instruct students in creating strong arguments in a variety of populations and contexts. It also builds on the premise of several information-literacy empirical studies (Alfino et al., 2008; Deitering & Jameson, 2008; Diekema et al., 2011; Kobzina, 2010; Lupton, 2008) that integrating an understanding of argument into the research process is essential; this theme is echoed in ACRL's Threshold Concepts (2014) of "Research as Inquiry" and "Scholarship as a Conversation." This study should move the conversation

forward by using an experimental instruction -- similar to the argument studies mentioned earlier -- based on Toulmin and Walton but that incorporates ideas from the information-literacy studies mentioned above by including this instruction into the research or information-gathering phase of writing an argument research paper, broadening the scope of applying to the process of researching and selecting information in order to build an argument.

Because this study explored the effect of including instruction in argumentation in the research and outlining phases of writing the paper, it will provide more information about how the dialectical method may be used in instruction. This study's findings have indicated that including instruction early in the research stage of the paper, using a combination of Toulmin's (2003) structural method and Walton's (2017) dialectic method of argumentation, which employs the critical questioning of claims and evidence as a strategy for weighing evidence and either rebutting or integrating counter-claims, results in students creating stronger arguments in which various perspectives have been included. The effect of the instruction was based on the results of researching and building an argument, as the students create an outline for their research paper. Also, the use of images was included as a way of helping students understand multiple perspectives and begin to incorporate argumentative thinking into their writing processes. It can be concluded that this integrative method works especially for college students who may be unprepared for constructing coherent arguments, evaluating evidence from multiple sources, and exploring a variety of perspectives on an issue, all of which they will be expected to do with increasing abilities as they progress through college. It was also important to learn whether including this focus on argument in the early stages

(researching and outlining) of writing a paper that is often part of the instructional work of librarians either in a stand-alone course or in collaboration with other faculty is effective.

Another relevant element of this study was that both Toulmin-based elements of argument (claims, data supporting claims, counterargument claims, data supporting counterargument claims, rebuttal claims, and data supporting rebuttal claims) were counted in the assessment phase and the ASRAW rubric used to measure the relevancy of these elements within the argument structure by assigning points to each category based on characteristics defined in the rubric, which is important as only one study (Abdollahzadeh et al., 2017) has included this level of analysis, although the researchers (Stapleton & Wu, 2015) who developed the ASRAW in their own empirical study suggested that counting Toulmin elements alone does not measure adequately the strength of an argument and that the ASRAW rubric corrects this deficiency by including a measurement of the relevancy of the elements to each other. Assessing the arguments in the current study using the ASRAW rubric provided information for future researchers assessing argumentation skills in student work.

Theoretical Framework

The main theoretical framework for this study was argumentation theory: Toulmin's (2003) structural approach and Walton's (2012) dialectical one. The content of the experimental instruction used in this study was based primarily on Toulmin, whereas the instructional methods (student pair and group work) capitalized on Walton's dialectic view of argument and fit generally into a social constructivist theory of learning (Vygotsky, 1986). There is a vast literature at the college level on the teaching of writing

including argument. Most argument theory has its antecedents in the Greek tradition of rhetoric in which there is a goal of persuasion through language, once mainly oratory now also written in which the relationship of speaker or writer to his or her audience is key. Aristotle also developed two other forms of argument -- formal logic and dialectic argument -- usually associated with dialogue or debate (van Eemeren et al., 1996). Formal logic became crucial in the development of mathematics, computer science, and science but is still taught within the scope of many rhetoric or writing courses in the form of basic deductive and inductive logic. Meanwhile with the development of discourse analysis (Bartholomae, 1986), rhetoric theorists and teachers have brought back a form of the dialectic to rhetoric; for example, a writer can be encouraged to imagine a dialog between themselves and a "universal audience," but the basic intent remains: to convince one's audience of a claim while incorporating to some extent an alternative or opposing viewpoint, mainly to strengthen the author's own argument.

Meanwhile the original "dialectic" or dialogic view of argument has been resurrected in argumentation theories put forward by van Eemeren et al. (1996) with the theory of "Pragma-Dialectics" and by Douglas Walton (2008) with the cataloging of various types of dialogic arguments, such as Persuasive, Inquiry, Negotiation, Information, Seeking, Deliberation, and Eristic. The dialectical approach to argument resonates with the social constructivist approach to teaching (Vygotsky, 1986) in which knowledge is constructed through the inter-exchange of ideas of students working together.

Each of these views of argument has its own set of critical, reflective questions that can be asked to move an argument forward in a dialectic way. Nussbaum and

Edwards (2011) and Nussbaum et al (2018) adapted Walton's (2012) theory and developed instruction in which students were trained to identify dialectic arguments and ask critical questions about the claims and evidence of arguments from various perspectives, so that a nuanced position on the issue could be achieved. These skills developed in the context of in-class collaborative group work were then transferred to the writing of typical argument research papers. Although Walton's (2008) theory certainly does not dictate any particular method of teaching, Nussbaum and Edwards' approach used in the Kindergarten (K) to 12th-grade environment is a practical one to adapt for a college-level composition course. Toulmin's (2003) model has been used extensively in writing and critical-thinking courses and lends itself easily to both analyzing and generating arguments. The main difference between these two theories of argument is that Toulmin's is situated firmly in the rhetorical tradition, whereas Walton's that is in the dialectic. When argument is viewed as a dialogue, the aim is not to convince but to assess the quality of competing claims and integrate the strongest claims and evidence into a new claim (van Eemeren et al., 1996).

This kind of dialectic is mirrored in the new "scholarship as a conversation" threshold concept of ACRL's (2015) new framework for information literacy. Threshold concepts, such as "research as inquiry," "authority as contextualized and constructed," and "scholarship as a conversation" (ACRL, 2015) that complement the use of Walton's (2012) dialectic theory of argument, also are based on a social-constructivist approach to education. Finally the use of visual materials is consistent with social constructivism, as visual-literacy concepts can be taught using a social-constructivist methodology.

Nussbaum (2011) tested out both of these theories and found that using Walton's

(2012) method had better results in terms of students creating stronger arguments with more integration of alternative or opposing viewpoints. Nussbaum and other researchers (Nussbaum, 2011; Nussbaum et al., 2018) also pointed out that Walton's theory of argument is a good fit with social-constructivist learning theory as it can be taught naturally while having students interact and present alternative viewpoints on an issue in pairs or groups that is also a way to model a social-constructivist approach to learning. Given these results, designing instruction that focuses on the dialectal elements that Nussbaum (2011) illustrated as effective while incorporating the most essential and well-tested structural Toulmin elements should be successful. Other studies (Abdollahzadeh et al., 2017; Anderson et al., 2001; Kuhn et al., 2013; Macagno et al., 2015; Nussbaum et al., 2018) have illustrated how students' arguments written as either outlines or essays may be strengthened through training in the dialectical, questioning method of evaluating evidence, claims, and arguments and also that written arguments may be evaluated by at least in part by counting the number of other-side arguments included and evaluating how well-founded they are and how well they are rebutted.

The experimental instruction used in the study incorporated ideas from the Toulmin (2004) and Walton (2012) methods in the way arguments are presented and with worked through critical questioning by students. The group work that was incorporated in to the instruction allows for a social-constructivist approach (Vygotsky, 1986) to formulate arguments that incorporates new ideas from the critical questioning phase of the pair work. The final phase of instruction involved the critical appraisal of arguments created collectively by students in the groups formed by combining pairs.

Background and Need

Not only do over 60% of entering college freshmen require remediation or basic-level courses in mathematics or English (National Center for Higher Education and Public Policy, 2010), but also many of those who complete those basic-level courses do not graduate. A more recent study (Che, 2016) puts the numbers for 4-year institutions at least 29% and for 2-year institutions at 49%, but these researchers believed the number is likely higher. In California, Assembly Bill 705 has largely restructured remedial education to eliminate remedial courses, replacing them with courses incorporating additional support, but the need to address teaching basic-level skills remains (Hern et al., 2020). Some students drop out in the first year, but many who have succeeded in the first year leave college in the sophomore year. The link between college persistence, engagement, and academic achievement has been well established, using the National Survey for College Engagement and other measures (Kuh et al., 2008). One possible hypothesis for this link between persistence, engagement, and academic achievement is that English (reading, writing, and thinking critically) and basic mathematics are not being taught in a way that allows students to transfer these skills to their discipline-based courses. Indeed, a good deal of research (Kuh, 2008) has been conducted to identify practices best suited to achieve persistence through the 1st and 2nd years of college, and certain high-effect practices, including instruction in writing, participation in a cohort or 1st-year learning communities, instruction in reading comprehension, instruction in information literacy, utilization of collaborative work, and others, have been identified as instructional methods that increase engagement, achievement, and retention.

Results of studies (Kuh et al., 2008; Nelms & Dively, 2007; Wardle, 2007),

however, indicate that how writing (and reading and information literacy) is taught matters much more than how much writing and research is included in a course. Instruction must create opportunities for "deep-learning" discussions (Nelms & Dively, 2007) among peers and engagement with the material that increases the likelihood of learning that "transfers" to other courses and thus increases the likelihood of a student staying in college. Wardle (2007) emphasized a sociocultural approach in which developing students' abilities to contextualize and decontextualize learning processes is important to achieve transfer of learning to new situations. Her study specifically investigated 1st-year-experience writing courses that emphasized learning how scholarly arguments develop through research.

Given this added need of instruction in the 1st year to foster transferable skills, it becomes even more important to explore alternative methods to teaching argument and research that can achieve the deep learning and student ability to understand their own assumptions and biases and thus their position and repositioning within overlapping scholarly conversations. There is a consensus that active instruction taking a social-constructivist (Vygotsky, 1986) approach, incorporating a variety of learning styles (Kuh et al., 2008; Mayer, 2008), for example, both visual and textual material, and opportunities for collaboration and discussion among students using textual and visual material have been shown to increase student interest and positive emotions (Park & Lin, 2004, 2007) that also may be linked to increased motivation and achievement (Rotgans & Schmidt, 2011).

The teaching of argument, in the context of writing instruction, has been dominated by rhetorical or persuasive models (Kuhn & Andriessen, 2011; Newell et al.,

2011). In fact, most classical texts relating to the teaching of college-level writing, including argument, focus on rhetoric, not on current theory of argumentation. More recent works by leaders in the field of teaching writing, including Andrea Lundstrom, David Bartholomae, Patricia Bizell, and others, referenced theories such as Baktin's discourse analysis, viewing scholarship as a conversation, still focus on the use of various rhetorical schemas to introduce students to this "conversation" (Graff & Birkenstein 2014). The most common model for argument used by college-writing instructors is Toulmin's (2003) model that comes from the rhetorical- or persuasive-tradition argument handed down from the time of Aristotle (Fulkerson, 1996; Newell et al., 2011; van Eemeren et al., 1996). Within this tradition of teaching argument as a rhetorical form, current practice focuses on teaching the writing of argument as a process (Prince, 2007). Instruction in writing argument papers involves scaffolding the various steps of the process from researching and reading articles to taking notes, organizing ideas into an outline, writing a rough draft, and then revising.

At the stage of structuring the argument, the Toulmin method (2003) has been used extensively in teaching argument analysis in rhetoric and composition courses (Graff, 2003; Newell et al., 2011). The method breaks arguments into claims (what is being argued for), evidence, warrants (the logical links between the evidence and the claim), rebuttal (counter-arguments) and qualifiers (exceptions to the claim), and backing (commonly accepted ideas or facts from the field or subject area of the argument that support the claim and warrants). Many instructors of college composition have chosen some version of the Toulmin model to provide students with a schema for understanding the structure of arguments and, therefore, a way to think critically about them, detect bias,

and evaluate evidence. The Toulmin model also is a good method to help students understand how providing a counter-argument strengthens an argument. Having this understanding also can help students avoid missing evidence that does not conform to their own assumptions and biases (Wolfe, 2012).

In addition to paying attention to the mode of instruction by making it active, including verbal and visual learning styles, incorporating collaborative work and opportunities for deep engagement, discussion, and thinking, these modalities cannot alone close the gap between students who persevere and those who do not. It is worth investigating whether incorporating direct instruction in argument schemas such as Toulman's (2003) model (Nussbaum, 2011; Nussbaum & Edwards, 2011; Wolfe, 2008) and in dialectic questioning (Nussbaum, 2011; Nussbaum & Edwards, 2011; Nussbaum et al. , 2018) also increases achievement and the learning required for transfer from one assignment to another, for example, from an argument outline done in class to one done outside of class on a new topic researched by the student. The argument for the worthiness of making this attempt comes largely from K- to 12th-grade education literature; but for introducing students to the scholarly conversation of the Academy, it makes sense to use it as a bridge from K-to-12 to higher education.

Researchers Alfino et al. (2008) taught argument by dissecting Wikipedia article revisions and based their instruction on Bartholomae's theory of discourse communities. Kobzina (2010) collaborated with environmental science and English faculty to design instruction that had students explore various perspectives on environmental problems. Lupton (2008) found that students need help moving from a "seeking evidence" modality to a "developing an argument" one, which Lupton (2008) believed was as a more

advanced and inclusive view of information literacy. In this case, students also were asked to find social relevance in their topic, which involved more self–reflection and evaluation of ideas relative to other disciplines and to their own point of view. Based on the study results in which Lupton (2008) used students' reflections on their processes to come up with these general categories, Lupton suggested providing students with opportunities to reflect on their own assumptions about the research process and to reflect critically on their own argument construction and evidence-gathering processes. Deitering and Jameson (2008) integrated the use of Graff and Birkenstein's (2006) templates for argument, based on their "they say; I say" dialectic view of the scholarly conversation that students must participate in and mirror in their essays.

Diekema et al. (2011) used a problem-based tutorial, complete with critical questions, to help students reflect on sources related to the debate around the health effects of cell-phone use. They found that students considered many points of view, looked at sources in their entirety, even considering funding sources for research when considering research quality and potential bias, and were aware of how their own biases could influence their ability to evaluate sources objectively. They also learned from journal entries that many students began to apply the process of analyzing their assumptions for potential bias. Although it specifically did not use argument schema as a method of teaching evaluation of sources, the problem-based structure of the module lent itself to use of the research journals that contained many critical-thinking questions dealing with bias and argument structure. The program was successful for many students, but whether one could generalize from these data is certainly questionable.

Researcher (Mateo et al. 2018) bridged the gap between writing and information

literacy studies by focusing their experimental instruction precisely on teaching students to evaluate and incorporate a variety of perspectives from different sources into their construction of arguments, by training students in the use of critical questioning of competing claims towards the aim of integration of these claims into their arguments.

All of these studies (Alfino et al., 2008; Deitering & Jameson, 2008; Diekema et al., 2011; Kobzina, 2010; Lupton, 2008) from the library science or information-literacy literature and Mateo et al. (2018) from the writing literature show how potentially valuable including a process to teach students how to recognize and evaluate their own biases and alternative viewpoints in the literature can be in helping them formulate and write argument papers on a topic while avoiding bias. These are isolated studies, offering primarily anecdotal evidence and are unique to particular courses and collaborative situations and not particularly reflective of how information literacy is taught traditionally. The more common approach reflects the current Association of College and Research Libraries (ACRL) standards (ACRL, 2001) and does not emphasize alternative perspectives, focusing on a checklist: timeliness, relevance, credibility, and authority. This approach to evaluating sources does not take argument analysis (quality of evidence, strength of logical connections, and reasonableness of claims) into account. The current research project, by focusing on the outlining phase of writing an argument, in which information from sources is used as evidence in the creation of an argument, provides a method of evaluating sources that considers their value in the context of a specific argument.

Recently, the library profession has become dissatisfied with the structure and content of these same ACRL standards (ACRL, 2001) and has now published a new

framework for information literacy (ACRL, 2014) that redefined common information-literacy concepts: authorship, ethical use of information, and quality of sources, as threshold concepts. Threshold concepts (Meyer & Land, 2003) are understood to be ones that necessarily are not static in their definitions but once understood can change a students' understanding of that element of a discipline, such as information literacy. The new threshold concepts for information literacy (ACRL, 2014; Townsend et al., 2012) include the following:

- search as strategic exploration,

- research as inquiry,

- scholarship as a conversation,

- authority is constructed and contextual,

- information has value, and

- information creation as a process.

The concept of "scholarship as a conversation" fits very well with teaching argument in a dialectic manner. Newer models of argumentation, such as Frans van Eemren's (1996) pragma-dialectics and Douglas Walton's (2013) dialectic schemas seek to return the element of the dialectic to field of argumentation, so that a greater variety of viewpoints and claims can be included, generating a questioning process whereby these claims are interrogated, weighed, and used to modify each other until the topic is understood fully and an integrative and balanced position may be achieved. Walton's (2013) argument schemas have been applied successfully to the teaching of the argument essay (Nussbaum & Edwards, 2011; Nussbaum et al., 2018) by having students work in groups and use critical questions both to evaluate and generate ideas on a controversial

topic. This critical-questioning component requires students to engage in the threshold concepts. For example, they could feasibly engage with "authority is constructed and contextual" by critically examining biases and assumptions held by themselves and others and the basis for what constitutes as proof within a particular discipline, "scholarship is a conversation" as they evaluate articles in the context of dialectic argument, and "research as inquiry" as they consider the relative merits of claims from various perspectives on a topic or issue.

These newer standards (ACRL, 2014; Mackey & Jacobson, 2013) characterize information literacy as more broadly connected to other literacies such as visual and digital literacies. In fact, Hattwig et al. (2013) have argued that visual literacy is becoming an essential aspect of information literacy given the vast amount of information now represented in both visual and digital formats. Harris (2006) and Patterson (2011) have examined how visual mapping of arguments and articles has become a useful tool in teaching students' information-literacy and critical-reading skills. So there is an argument to be made to include visual sources as well as text in the teaching of argument and research skills. With these changes to learning outcomes supported by ACRL, it becomes even more important to incorporate information literacy into argument instruction at the point of researching the topic and developing an outline. Both of these points, connecting sources to the evidence used in argument outlines and use of visual material in instruction, inform the instructional methodology of the current study.

The assessment of the argument outlines using the ASRAW rubric is also an important aspect of the study. The ASRAW rubric was developed empirically (Stapleton & Wu, 2015) for the purpose of creating a method of evaluating arguments that

emphasizes the strength of the evidence provided and the logical connections between the elements (claim, counterargument claim, rebuttal claim) of an argument that most writing rubrics do not do. This study is important because it provided more information about the ASRAW rubric that has only been used in one study (Abdollahzadeh, 2017).

Research Questions

Based on the above description of the methodology and research focus of the study, these are the research questions that will guide this study.

1. To what extent is there a difference between total scores on the ASRAW for the preoutlines, postoutlines, and the research paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

2. To what extent is there a difference in the scores from the claim and data supporting claim sections of the ASRAW for the preoutlines, postoutlines, and the research paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

3. To what extent is there a difference in the scores from the counterargument claim and data supporting the counterargument claim sections of the ASRAW for the preoutlines, postoutlines, and the research paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

4. To what extent is there a difference in the scores from the rebuttal claim and data supporting the rebuttal claim sections of the ASRAW for the preoutlines, postoutlines, and the research paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

Definition of Terms

There may be other definitions for the terms given here, but the ones provided are the ones used in the study.

Analytic Scoring Rubric of Argumentative Writing is a rubric containing categories for claims, data-supporting claims, counterargument claims, data-supporting counterargument claims, rebuttals, and data-supporting rebuttals used to evaluate pre- and postoutlines and the controversial-issue-paper outlines. ASRAW rubric scores are the dependent variable for the study, measuring the strength of the arguments contained in the outlines (Abdollazadeh et al., 2017). The rubric scores range from 0 to 5 for claim(s), 0 to 10 for counterargument claim(s) and rebuttal claims, and from 0 to 25 for each type of data (supporting claims, counterargument claims, and rebuttals). The total score may range from 0 to 100 (Stapleton & Wu, 2015).

Bias is either a conscious or unconscious set of beliefs about a topic that tend to make someone favor a particular side of a debate and ignore facts, opinions, and other evidence that favors the other side (Wolfe, 2012). Bias was not measured directly by the study, but it was a concept engaged with by students in the experimental instruction.

Claim, in this context, is the "initially-stated conclusion" (Stapleton & Wu, 2015, p.13) and other statements made to support this conclusion, that is supported by data or evidence (Quin & Karaback, 2010; Stapleton & Wu, 2015).

Counterargument Claim is a statement made that contradicts a claim that may be supported with data (evidence; Quin & Karaback, 2010; Stapleton & Wu, 2015).

Data are evidence stated to support claims (Quin & Karaback, 2010; Stapleton & Wu, 2015).

Experimental Instruction is the independent variable of the study that includes lecture discussion, pair, and group work, using images, and articles on a controversial issue to introduce Toulmin (2003) argument structure and a dialectical activity (Walton, 2012; Wolfe, 2012) aimed at having students understand various perspectives on the controversial issue.

Information literacy is the ability to determine the extent of information needed, formulate a search strategy, and evaluate and utilize the information found in an ethical way Association of American Colleges and Universities (AAUC, 2013).

Metaliteracy is a group of interconnected literacies that include visual literacy, information literacy, and computer literacy. This concept also may include students' understanding of their level of skill in these literacies (Mackey & Jacobson, 2011).

Rebuttal claim is a statement made that refutes the counterclaim; a rebuttal claim also may be supported with data (Quin & Karaback, 2010; Stapleton & Wu, 2015).

Threshold Concepts are concepts that once learned change understanding of that aspect of the discipline (Brunetti et al., 2011).

Toulmin Argument Theory (2003) is a structural view of argument in which arguments have claims, warrants, backing, qualifiers, data, and rebuttals (Toulmin, 2003). The elements (claims, data-supporting claims, counterargument claims, data-supporting counterargument claims, rebuttals, and data-supporting rebuttals) were counted in the study and formed the categories of the ASRAW rubric based on Toulmin elements.

Walton's dialectical theory of argumentation is a method of argument that identifies a variety of schemas for argument such as arguments from sign, expert testimony, cause, and others and generates critical questions to use to gauge the viability

of the components of these arguments and to compare dynamically claims and evidence from more than one perspective with a goal of both evaluation and integration (Walton, 2012).

Summary

Overall, this study investigated the efficacy of including instruction in argument using elements from Toulmin (2003), primarily focusing on Walton's (2012) dialectical approach, in the process of teaching students how to research and outline their arguments for their argument and research papers. The approach incorporates visual tools and emphasizes creating an understanding of the structural components of argument and the assumptions and potential biases of claims and evidence, so students may reflect on their own biases and go beyond them in constructing stronger and more integrative arguments and do a better job of evaluating evidence from sources. The approach also uses dialog to encourage students to develop critical questions to challenge evidence in each other's arguments and apply that process to creating stronger arguments, tested through critical questioning of the evidence supporting their claims. Outlines were used for assessment instead of the essays because the outlining phase of researching and writing an argument paper is where students typically develop the argument structure for the final paper. The review the literature of teaching argument using verbal and visual resources including structural and dialectical approaches is found in chapter II. Chapter III contains the methodology used in the study and includes the experimental instruction, participants, measurements, and data analysis. The results of the study are found in chapter IV, and the discussion, limitations, and recommendations for future research and practice are found in chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study is to measure to what extent an experimental method of teaching argument incorporating elements from both Toulmin's (2004) structural approach and Walton's (2013) dialectical approach effects first-year college students' ability to research and write strong arguments. The working definition of a "strong" argument used in this study -- which reflects common ideas in the literature (Wolfe, Britt, & Butler, 2009) -- is an argument that clearly presents a claim, backed logically by verifiable evidence from reliable sources that includes an acknowledgment of counterclaims, the data supporting them, and either refutes or integrates counterclaims into the argument (Wolfe, 2012). This study is designed to fill the gap in the literature by investigating to what extent an experimental pedagogy that focuses on how to build strong arguments by incorporating alternative viewpoints through a dialectical process of critically questioning the data supporting claims and counterclaims will help students create stronger arguments in a first-year composition course requiring an argument and research paper.

The literature related to the history of and development of current argument theory, how argument and research is taught in grades 9 to 12 high school and at the university level, with a focus on first-year college composition courses is presented in this chapter. This review includes historical and current argument theory, recent developments in argument pedagogy in general and specifically in the context of English Composition, and relevant studies from information literacy instruction, particularly those that relate to the research phase of constructing an argument for an argument and

research paper.

Historical Context of Argument Theory

A good current working definition of argument or argumentation is "Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint" (van Eemeren & Grootendorst, 2004, p.1). This definition of argument and in fact, most Western study in the area of argument can be traced back to 5th century Greece and the Sophists (van Eemeren, Grootendorst, & Henkemans, 1996). Sophists, the first to question the certainties of traditional beliefs about the gods and physical world, taught various types of argument skills mostly for debating purposes among the wealthier, politically inclined citizens; the development of argument theory as is known today is attributed largely to Aristotle who developed the three major branches of argument (van Eemeren, & Grootendorst, 2004), Syllogistic Logic "Analytica" includes inductive and deductive logic (premises evidently true), Dialectic "Dialectica" systematic dialogue between "moves" for and against a particular hypothesis (premises are generally accepted as true), and Rhetoric "Rhetorica" art of persuading a particular audience (premises need only be plausible).

Syllogistic logic had both deductive and inductive forms. For example, a deductive argument could be major claim (all people are mortal), minor claim (Greeks are people), and conclusion (all Greeks are mortal). Other forms of deduction include for example major claim (no work is fun), minor claim (writing a paper is work), and conclusion (writing a paper is not fun). A deductive argument may be valid or invalid

based on the format, sound or unsound based on the truth of the premises. Modern types of deductive arguments include (van Eemeren, & Grootendurst, 2004) those from mathematics, definition, categorical syllogism, hypothetical syllogism (if it rains, he will use an umbrella; it is raining; therefore, he is using an umbrella), and disjunctive syllogism (we will go to the park or to the museum; the museum is closed; therefore, we will go to the park).

Inductive reasoning is coming to a conclusion based on a series of examples that exhibit a pattern and suggest a rule that can be used to predict the outcome of a similar event. For example, series (every time Jane heats a pot of water on the stove it boils), conclusion (when Jane heats this pot of water on the stove, it will boil). Inductive syllogism can be strong or weak (more than 50% likelihood that the conclusion is true = strong) or cogent or uncogent (cogency depends on the truth of the claims leading to the conclusion). Modern examples of indictive arguments are categorized as prediction, causal inference, from examples to generalization, arguments from analogy, argument from signs, and argument from authority.

Dialectical argument in Aristotle's time consisted of a systematic dialogue where "moves" for and against a particular hypothesis or thesis are made (van Eemeren & Grootendurst, 2004). Originally it took the form --now known as "reductio ad absurdum"– of an indirect proof where a counter claim is disproved by deriving an untrue claim from it. In the *Topics,* Aristotle described how to attack and defend against an attack and how to attain concessions from an opponent that will lead to a contradiction that will cause a weakening of their original thesis. The goal of the dialectic in the time of Aristotle was to force a speaker into a contradiction and, therefore, lose the debate or

discussion.

Rhetoric was the third major branch of argument handed down from Ancient Greece and developed by Aristotle, Cicero, and many others. Rhetoric -- then as now-- is considered to be the art of persuading a particular audience of the speaker's point of view. (Or in the case now a universal audience may sometimes be used.) Aristotle postulated rhetoric as composed of extrinsic sources such as laws, documents, facts at hand, and intrinsic abilities of the speaker such as Ethos (character), Pathos (emotion), and Logos (logic). Aristotle categorized many fallacies still recognized today that were to be avoided by the speaker and pointed out by a critical audience.

In the 20th century, many breakthroughs, relevant to the current study, occurred in argumentation theory. By far the most influential in the teaching of college writing was Toulmin's theory. Toulmin (2004) was developed his method of argumentation characterized here in the 1950s and presented in Figure 1.
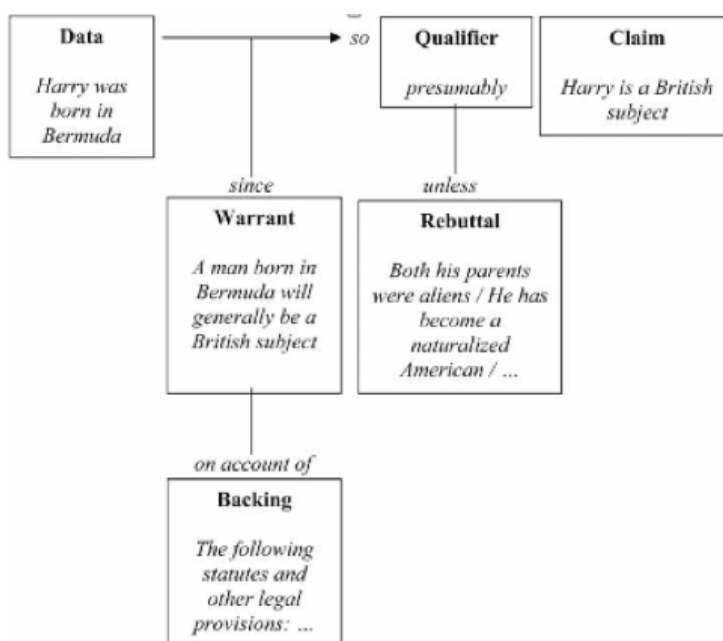
Figure 1. Diagram of a Toulmin argument.

A Toulmin (2003) argument contains the following components: Claim (statement being argued for which may be a fact, a value or a policy; qualifier (exception to the claim), data or evidence (data, eye witness accounts, expert testimony, etc.…), warrant (reason or logic to connect evidence and claim), backing (beliefs that justify warrant and validity of evidence), and rebuttal (claim that counters the original claim). Toulmin's ideas (2003) have been integrated into countless textbooks for argument and critical-thinking courses since the 1950s into the present day. Many simplify the above categories, leaving out the warrant and qualifier terms, replacing them with a counterclaim and rebuttal against the counterclaim (Newell, 2011). Most view the Toulmin structural approach to argument as primarily rooted in the rhetorical tradition of argument with an emphasis on persuasion; meanwhile argumentation theory has continued to evolve and bring the dialectic branch of argument back in to the foreground.

First came the "New Rhetoric" of Perelman and Olbrechts-Tyteca (Blair, 2012); followed by the development of Pragma-Dialectics by van Eemeren and Grootendorst (2004). Perelman and Olbrechts-Tyteca (Blair, 2012), two Belgian professors of philosophy, sought to join the dialectic with rhetoric by forming a descriptive phenomenological theory of argumentation that incorporated the dialectic and the rhetorical, that, in other words, examined argument as both dialogue and a vehicle for persuasive thought, understanding that both logical reasoning and value judgment play a role in human discourse. They placed a strong emphasis on presenting an argument as if it was a dialogue with an audience, incorporating an understanding of what that audience's value, background knowledge and beliefs most likely are.

This theory assumes that argumentation is a representation of an exchange of

ideas between two parties with differing viewpoints on a topic, even when this exchange is represented as a monologue as in a typical argument essay. This view of argument posits four stages of discourse: Confrontation, opening, argumentation, and concluding. The goal is more one of integration than winning (as opposed to classical rhetoric). Walton (2005) developed further the dialectic theory of argumentation, specifically classifying various kinds of dialogues that form arguments, such as the "argument from expert witness." He is concerned with probing the relative strengths of arguments via the use of questions (Walton, 2008). For example (Bex & Walton, 2018) discussed how legal court cases model a dialectical approach to argument in which critical questioning and dialogue are used to decide the plausibility of various arguments, assuming "common sense" knowledge about the world. For example, in an argument from expert witness, Walton (2015, p. 54) proposed the following types of critical questions:

1. Expertise Question: How credible is E (expert) as an expert source?

2. Field Question: Is E an expert in the field that A (assertion) is in?

3. Opinion Question: What did E assert that implies A?

4. Trustworthiness Question: Is E personally reliable as a source?

5. Consistency Question: Is A consistent with what other experts assert?

6. Evidence Question: Is E's assertion based on evidence?

These questions would be very relevant not only in examining expert testimony but also in the research process when evaluating sources for inclusion in an argument research paper and, of course, more generally in any argument relying on conclusions asserted by an expert in the field. Several researchers (Nussbaum & Edwards, 2012;

Nussbaum, et al., Wolfe, 2012; Wolfe, Britt, & Butler, 2009) have trained students in asking these kinds of questions as part of their instruction on evaluating and writing arguments. What follows is a brief account of the importance of argument in the middle school to high school and college curriculum and then review of the literature on argument pedagogy, illustrating how argument theory has influenced the development of argument pedagogy.

Argument Theory and Empirical Studies

Education from middle school to high school through college always has concerned itself with the goal of teaching student to understand, critically evaluate, and construct sound arguments (Graff, 2003). This goal was emphasized in the Common Core (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010), developed for kindergarten (K) to 12th grade that also emphasizes argument development in writing, critical reading, and thinking skills. At the college level, introductory writing courses traditionally have served as a place to begin the transformation of the entering student into a discerning, critically-thinking member of society, which is where students often learn to read, write, find information, and construct arguments on topics of both personal and societal concern. In these classes, students embark on the journey to becoming discerning consumers and producers of arguments based on sound reasoning and evidence. Most colleges require that students take such a writing class in their first year. How the writing class is constituted varies, but invariably a great deal of weight is given to argument, research, reading, and thinking critically.

How this instruction is delivered varies. The vehicle could be a developmental-level writing course, a first-year composition course, a critical-thinking course, or a

"first-year-experience" learning community. The goal is the same, that is to teach students to engage in critical dialogue, research, and read articles about a topic, presenting their synthesis of these ideas into a written argument. The most common classroom model used is for students to read articles, discuss them, formulate a topic, do research, and write a paper. Many variations across academies exist; students may do group presentations on a topic or annotated bibliographies, but the idea of teaching the ability to research, engage in critically debate, and present arguments on a topic remains a constant. Often a controversial issue of some kind is required for the topic and also writing a strong argument that includes and discusses counter-arguments and evidence supporting them. How these skills and processes are taught is debated in the literature (Prince, 2007; Newell, 2011), but their importance in higher education is well established.

For example, Prince (2007) summarized the current dominant view that the writing process (from topic development, to research and critical reading, to writing an outline, a rough draft, revising –often via peer-response sessions, and finally polishing and proofing the final draft) needs to be emphasized via "student-centered" instruction over content delivery of grammar and essay structure that "traditionalists" favor. He warned against a diminished emphasis on the reading and analysis part of writing an argument paper that can result from spending an inordinate amount of time on breaking the writing process down and lengthening the time it takes to complete even one essay assignment. He suggested a more balanced approach in which reading and exploring ideas initially and critically analyzing and synthesizing those ideas is re-emphasized as a first important step in the process of writing an argument paper from sources. Indeed, any

attempt to teach students how to write good arguments must involve teaching them to be able to read them critically and, when material is not provided by the instructor, also to find appropriate material to read on the topic.

Newell (2011) reviewed the literature on teaching argumentative-writing skill and concluded that there are two major types: those that rely mostly on cognitive or structural models and those that focus on social constructivism where the social context of argumentation is emphasized. This study continues the tradition of testing a pedagogy to teach students argument in all of these contexts, critically reading evaluating arguments, selecting relevant material for their argument, and actually constructing one that contains the necessary elements including claims, evidence, counterclaims and rebuttals, focusing on integrating into the earliest stages (reading and researching) of argument development.

The composition and argument research tends to support the idea that students' ability to integrate sources into an argument, understand arguments in published articles, and avoid bias is problematic and requires improvement (Hillocks, 2010; Nussbaum, & Schraw, 2007; Quin, & Karabacak, 2010; Wolfe et al., 2009;). Empirical studies in the argument and composition literature have tested out various methods of improving students abilities to understand arguments and avoid bias, including teaching students argument schemas such as the Toulmin model and how to develop their own critical questions about argument components including claims, evidence, and logical links between them.

Nussbaum and Schraw (2007) discussed first why "argument-counterargument integration" is important to creating a strong argument, then strategies to increase college students' abilities to include counterarguments (alternative viewpoints) in their essays.

They provided an extensive literature review on this element of argument writing, including empirical studies that described students' difficulties in this area: lack of understanding that including a counter-argument and a rebuttal would strengthen their argument, a lack of understanding on how to include one, or both.

Nussbaum and Schraw (2007) began with a conceptualization of integrating counter-arguments called "refutation, weighing, and synthesizing." Not only did use of one of these strategies create a stronger argument and force students to examine their own thinking on a topic by looking at more than one viewpoint, it also exhibited an essential element of dialogic thinking that many believe is also central to critical thinking. Nussbaum and Schraw cited Bakhtin and Vygotsky to support the importance of group learning and dialogue in development of students' critical thinking skills. They then designed a study to test out two different ways of helping students learn to do this process: They randomly assigned 80 undergraduates to one of four conditions: training in criteria, graphic organizer, both, and neither. They examined the end result (argument essays) via looking at "idea units" subdivided in to arguments and counter arguments (p. 70) and tabulating the results. An increase in idea units and integration occurred for both methods but integration was greater for the criteria group (over the graphic organizer group). Nussbaum and Schraw stated that core research needed to be conducted in this area, using different types of graphic organizers.

Patterson (2011) explored methods of graphical representations in detail, showing the possibilities of providing a flow-chart-like schemata for complex arguments from data to claim, using a technique called argument mapping. Argument mapping can reveal the chain of reasoning linking data to claim and show the potential effect of counter-

argument on the claim; creating an argument map according to Patterson can be a powerful method of revealing to students the structure of their own arguments, including their own biases and omissions. She illustrated how argument mapping can help with all stages of the argument research paper, which she delineated as follows: "Research, Structure, Assumptions, Evidence, Evaluation, Judgment. "

Quin and Karabacak (2010) used a modified Toulmin's model for argument " claim, data, counterargument claim, counter-argument data, rebuttal claim and rebuttal data" to analyze the structures of argument papers written by Chinese-English-Fluency-Learner (EFL) students and also to correlate overall quality with use of these elements. They had 123 second-year students read two articles with opposing viewpoints on the same topic, then write an argumentative paper. They found that, on average, each paper had at least one claim backed by four pieces of data; however, use of the other Toulmin elements was sparser but was associated with higher quality papers.

Quin and Karaback (2010) reviewed the literature relating to use of Toulmin's model as "a framework for analysis in argument writing and as an instructional heuristic to teach argumentative writing" (p. 445). This article provided background on Toulmin and showed that the problem of not citing opposing viewpoints in argument papers exists for this population comprised of EFL learners and provided descriptive information, not so much suggestions for instructional strategies to solve it although studies that did use Toulmin as a basis for instruction not just evaluation were mentioned. They did not include warrants, backing, or qualifiers (key components of Toulmin) in their analysis, as these did not occur frequently.

Song and Ferretti (2010) conducted an empirical study with college students on

revising papers on a controversial topic. They divided the students into three groups. One group learned two argument schemas (argument from consequence and argument from example); they used these to revise. The second group learned the schemas and also learned to generate critical-thinking questions; the third group did not learn either technique, but simply revised their papers. Song and Ferretti included an extensive and useful literature review on the uses of argument analysis training in teaching students to write arguments. In this study, 30 undergraduate students enrolled in an undergraduate elementary-school teaching class were used, representing a relatively small sample size; who were then divided in to the three treatment groups described above. After the trainings and revision sessions lasting two to three weeks, it was found that those students trained in the critical thinking question method (ASCQ: Ask and Answer Critical Questions) relating to analyzing arguments did the best job of supporting their arguments with reasons and evidence and of including alternative viewpoints and rebuttals in their papers. The other two groups were the group who received no special instruction and the group who learned the Argument Scheme Strategy (AS).

The papers were analyzed using a rubric with an overall score of 1 to 7 that looked at the argument features in their papers; these results were quantified along with pre- and posttest scores and various statistical tests (*t*-tests and paired-sample Analysis of Variance) were conducted to discover statistical significance for the results; the difference in score correlating with the ASCQ method were significant while for the AS strategy they were not when compared to the comparison group. This empirical study had a sample size that was broken into three groups and that resulted in a very small sample size for each group. The statistical tests had low statistical power that could have resulted

in Type II errors. The results did support some of the suggestions made by Nussbaum and Schraw (2007) that critical questions or a method reflecting the Walton dialogue theory of argument may be superior to using instruction in argument schema to improve students' understanding of how to strengthen their own argument via inclusion of alternative viewpoints and rebuttals, which is an example of using argument schema and critical questioning and could be applied to information-literacy and argument instruction that will be used in the proposed study.

Wolfe et al. (2009) discussed bias as the tendency to exclude information representing the other side of the argument. In this article, they first presented studies showing the existence of this problem, then they presented three different studies that looked at this phenomenon and also a conceptual framework for the study of argumentation. They provided examples of schema to evaluate arguments and a review of the literature on bias. They also described the composition process and how it depends on having a schema in mind for the type of writing being done or else as studies they cited showed students tend to stumble in attempting to complete successfully assignments that demand a particular rhetorical approach including argumentation.

 "Argumentation schema is learned, culturally derived set of expectations and questions evoked by argumentation texts" (p. 185) as viewed by Wolfe et al.; also, "writing an argument requires the engagement and coordination of several cognitive processes such as retrieving a schema and encoding information from sources" (p. 184). They believed the argument the schema allowed readers who agree with a claim to find evidence supporting it in a reading, and likewise if in disagreement with a claim to find counterarguments and evidence in the reading, ignoring evidence supporting it. Wolfe et

al. cited literature to explain how bias results when readers have a fact-based schema for argument tended to ignore evidence used for counterarguments had no adequate argument schema to call upon to help organize the reading, or both.

The results of these empirical studies bolster the understanding of confirmation bias as a recurring problem in students' reading and writing of arguments and showed through well-designed studies with adequate sample sizes various elements of the above research problem. The researchers' inclusion of both argument reading and writing also was very illuminating showing the reading and writing connection. Another study by Hillock (2010) stated that a goal of higher education is to develop students' ability to think critically and engage in critical dialogue, but pointed out that these goals are not always well-defined in the literature or in institution's own learning objectives, specifically taking to task the idea of writing a "persuasive" essay as being rather vague and not as strong as asking that students learn how to build strong arguments, inclusive of counterarguments resting on good evidence. Hillock summarized Aristotle's argument method in which a minor claim and major claim support a conclusion, then introduced the Toulmin model in which "evidence" is linked to a "claim" via a "warrant" (logical reasoning) that may have "backing"; the claim can then be further bolstered or "qualified" by a "counter-claim" and "rebuttals." Hillock also described his method of teaching this cognitively complex method of argumentation to a diverse group of Chicago high-school students by having them engage in figuring out and analyzing crime scenes. Although the focus of the current study is college-level composition and argument, Hillocks' method illustrated how Toulmin's model can be scaffolded and made very concrete before being used directly to analyze more complex written argument or used as

a model for a students' own argument writing. McCann (2010) expanded on this theme, by conducting a similar study using an art donor scenario as the basis for analyzing an argument using elements form the Toulmin model.

Other researchers (Rex, Thomas, & Engel, 2010) described a case study of teaching argumentation to students at an alternative high school. They carefully integrated questions into the writing process about the various elements of a Toulmin argument model, including, for example, questions about point of view and stance in relation to the claim and questions about credibility, sufficiency, accuracy, and order when discussing the evidence used to support the claim. In this instance, teachers incorporated both an argument model and critical questioning into their instructional design in order to elicit better argument construction from students. At the middle-school level, researchers (Ferretti, Lewis, & Andrews-Weckerly, 2009) investigated how goals affected the structure of students' writing strategies; in their study, 48 students from fourth grade, and 48 from fifth grade, some with learning disabilities, some without, were randomly assigned to a comparison group or the experimental group that had scaffolding goals added to the argument assignment. In the experimental groups, students were given a general persuasive assignment for their writing; in the other, students were given goals broken down into subgoals reflecting elements of an argument. Researchers (Ferretti et al., 2009) used a 7-point rubric to assess the arguments in the persuasive essays produced by the students. Raters were asked to consider if students had stated their position clearly, provided reasons and evidence for it, and whether students had considered opposing viewpoints. The means of the scores on the 7-point rubric were higher for students in the experimental group and also for students without learning disabilities and for students in

the higher grade. An analysis of variance using grade status (fourth or fifth grade), group assignment (comparison or experimental) and learning disability status (with learning disabilities or without) was conducted. Researchers also analyzed the structure of the arguments, seeking to determine levels of argumentation; for example, if claims backing the primary claim (described as "Level One") were also supported with evidence (described as "Level Two"). The experimental condition, however, had no effect on a greater use of "Level Two" evidence as support for counterclaims.

In a more recent study (Nussbaum et al, 2018) researchers determined in a study that compared three sections of an undergraduate general education seminar. Two sections (the experimental group) used argumentation vee diagrams with critical questioning prompts while the other group did not. Researchers found that the experimental group were more able to critically evaluate argument and counterargument claims in their in class essays. However, transfer of this skill to their out-of-class essays was limited.

What all these studies have in common, given their variations in population groups, learning goals, and instructional methods, is that including instruction in argument analysis whether using the Toulmin model in its entirety or just some elements of it (or indeed another model), helps students write better argumentative essays. Some of these studies (Nussbaum et al. 2018; Nussbaum & Schraw, 2007, Rex et al., 2010; Song & Ferretti, 2010) further indicate that including training in developing critical questions about argument based on argument schema is even more useful. The current study builds on these results by developing an experimental instruction that will include elements from past studies that were found to be most effective, including incorporating training in

critically questioning claims and evidence from various "sides" of an argument.

Other studies (Asterhan, & Schwartz, 2016; Hemberger, Kuhn, Matos, & Shi, 2017; Kuhn, 2018; Kuhn, Zillmer, Crowell, & Zavalla, 2013; Schwartz, Newman, Gil, & Ilya, 2003; Villarroel, Felton, & Garcia-Mila, 2016) explored using dialectical or dialogic methods for teaching argument in various populations including grades 6th to 12th and college. These studies included examples of argument pedagogy using critical questioning in pair or group work and -- in some cases -- leading to the construction of arguments, not individually, but collectively in pairs or groups through the process of having a dialogue about claims and evidence on various sides of an argument, using a structured critical questioning approach.

For example, stated that a key factor in learning argumentation skills is learning to examine critically and question various claims and ideas, leading to the consideration of various points of view and the ability to make concessions in building an argument (Asterhan and Schwartz, 2016). They also determined that argument was a vehicle for domain-specific knowledge growth, especially when building consensus is emphasized over purely disputatious argumentation where the goal is winning or persuading over producing a sound well-reasoned argument in which all sides have been considered. Although Asterhan and Schwartz (2016) in their review of the literature around argument pedagogy, focused on the benefits of a dialectical method of argumentation in developing domain specific knowledge; other research such as Kuhn (2018) and Kuhn, et al. (2013) investigated through empirical studies the importance of the social interaction in the form of critical questioning and dialectical discussion in developing students argumentative skills, especially their ability to evaluate critically arguments and form

new, stronger arguments based on these evaluations.

Kuhn (2018) having summarized various empirical studies on argument pointed out a pattern that students engaged in structured dialogues about social issues that they included critical questioning were better able to use evidence to strengthen or weaken claims on a topic. Kuhn et al. (2013) described an empirical study where these general ideas were put to the test. One group of students were taught to engage in argumentative discourse on a topic while analyzing and questioning evidence for competing claims and discussing norms for deciding what constitutes "good" evidence. The comparison group was not taught these skills but instead engaged in more traditional whole class lectures and writing activities. The results from this 3-year longitudinal study of sixth to eighth graders showed a statistically significant difference in students' argumentation skills especially in the area of critiquing arguments (set up as written dialogues), demonstrating an understanding of argument strategies, and in constructing dialectical arguments that included apposing claims with evidence.

Hemberger, et al. (2017) also conducted an empirical study with sixth graders to explore the efficacy of using instruction in dialectical methods of evidence used to develop students' skills in argumentation, particularly in the use of what the researchers referred to as "support" and "weaken other" (claim) evidence. In this study, 58 sixth-grade students were assigned randomly to three classes. Over the course of a year, all classes were trained to ask critical question relating to an argument topic, but one class was given both kinds of evidence (supporting a claim and weakening an opposing claim) to use in the critical questioning process; one group was given only evidence "supporting" a claim; and the third group was not given any evidence, although these

students were still trained in the critical-questioning process. All of the groups also were trained in dialectical approach to discussion of argument. A year-end assessment was conducted on an inclass argument essay written by all students across class sections of a controversial issue topic ("Should cigarettes sales be banned in the United States?"). For this assessment, all groups were given a list of evidence from both sides of the debate to use in their essays. Students in the group given both kinds of evidence throughout the year were better able than the other two groups to produce claims with evidence and use evidence that strengthened their own claims and weakened counterclaims. They provided this evidence not only in the yearend assessment of the inclass essay but also in formative assessments during the year of inclass dialogues conducted as part of the class. The group trained with just one kind of evidence (supporting a claim) also were better able to produce arguments with supporting evidence than the group that had not been trained with any type of evidence. The results of this study are relevant for the current study because they highlighted the importance of providing students with practice in identifying and using evidence both for supporting a claim and for weakening a counterclaim. When students are not given evidence with which to construct an argument, as in the case when assigned an argument and research paper, they must develop the skill in extracting evidence from sources: evidence both to support claims and weaken opposing claims. In the proposed study, the experimental instruction will include practice in this process through the reading of articles on a topic, prior to the construction of arguments and dialectical paired critical questioning of the claims and evidence in those arguments.

      The soundness (acceptability and relevance) of arguments created by sixth graders

trained in argumentation in a social setting that involved discussing readings in groups and using various argument diagramming methods to create new arguments was evaluated by Schwartz, et al. (2003). In this study, students working in groups out performed individual students in creating sound arguments, including a greater use of counterarguments and evidence. Villarroel et al. (2016) in their research study had pairs of students engage in dialogue on a topic where each student had to argue one side of a debate. Half the pairs were given instructions to persuade the other student that their position was correct. The other half were told to try to reach a consensus. Then students were tested individually to learn how well they could construct arguments that contained ambiguous evidence. Students who had completed the exercise of trying to persuade each other were less likely to interpret the evidence correctly and more likely to misinterpret it as supporting their side of the argument.

Another study (Nussbaum, 2011) explored more deeply the use of a more dialectical approach to teaching students how to understand and evaluate arguments. Nussbaum (2011) explored alternatives to the Toulmin (2003) model of argument, which has gained popularity in education, communication, composition, and rhetoric over the years. The researcher described the Toulmin method (claim, warrant, evidence, counter-argument, rebuttal) and then discussed alternatives to it, such as: "Walton's dialogue theory and Bayesian models of everyday arguments" (p. 84). He provided historical background to argumentation and a description of Toulmin's theory and how it has been applied in education. He discussed how Toulmin himself never thought all arguments were constructed this way but was presenting one way they could be constructed and acknowledged that in many cases warrants were not stated and they typically could

contain hidden assumptions.

      Nussbaum's (2011) main thesis was that although Toulmin's model is good; it tended to encourage students to dissect and find elements of a completed argument, whereas Walton's dialogue method allows for more back and forth discussion on an argument and is more generative of critical-thinking questions relating to the argument's strengths and weaknesses. He believed the Walton theory of argument was a "more comprehensive framework for analyzing and evaluating arguments" (p. 86). He presented schemas for developing critical-thinking questions based on Walton's method to establish an arguments plausibility. For example, he presented a table (p. 89) with 20 different types of arguments that Walton (2008) had delineated and presented sets of critical questions to use in determining the plausibility of that particular type of argument. Nussbaum also discussed his own study (Nussbaum & Edwards, 2011) and presented the simplified "Vee Diagram" used in their intervention. The Vee diagram provides a simplified way for students (grades 9 to 12 and college) to list in a graphical way arguments and counterarguments on a topic, along with critical questions related to the value and credibility of the evidence presented.

This methodology allows for a critical analysis of competing claims and evidence while opening the possibility of an integrative solution as well as one argument being proven stronger. See figure 2 above for Vee Diagram (Nussbaum and Edwards, 2011). Nussbaum (2011) demonstrated another way of analyzing arguments using the Bayesian predictive model. He discussed how the Walton method is being used in Philosophy classes, allowing students to conduct an in-depth analysis of arguments via developing critical-thinking questions as opposed to simply identifying (Toulmin) parts of an

argument. The Bayesian approach asked how likely a claim is true based on the

Vee Diagram: **QUESTION**

ARGUMENT   **COUNTERARGUMENTS**

INTEGRATE
Which side is stronger and why?
Consider evidence and data: *strength, relevance, source, credibility and type of evidence provided.*
Draw a line to opposing claims; what is the evidence for each?
Is there a **compromise or creative solution?**
Final Conclusion (claim you would ultimately argue for based on assessment of evidence on both side)

Rationale: Consider the **consequences** of your final conclusion

Figure 2. Vee Diagram (Nussbaum & Edwards, 2011)

premises being true to judge the strength of the argument Nussbaum (Nussbaum, 2011)

placed the Toulmin model in a context and showed that there are alternatives to it for

teaching students to evaluate argument and that other methods could compliment or

augment (or possibly replace) the Toulmin method. Many articles cite the Toulmin model as way of teaching argument and helping students understand and analyze the arguments, whereas Nussbaum showed that for students formulating their own argument, these other methods may be better.

Indeed, Nussbaum and Edwards (2011) completed a 6-month study in three sections of a seventh-grade social-studies class, discussing current events, in which one section served as a comparison group and two sections were part of the experimental group. The experimental group received instruction in use of Vee diagrams, critical questioning, and argument and counterargument integration. Nussbaum and Edwards suggested that the Vee diagrams and structured questioning approach would reduce cognitive load in students, leaving more room in working memory for evaluating the arguments. Students in the two experimental sections discussed a variety of current issues over the course of the 6-month study and used the Vee diagrams to discuss, evaluate, and construct arguments on the assigned topics (after reading articles on the subject). For example, for the question of whether taxes should be raised to feed the poor, students listed evidence on both sides of the debate using the Vee diagram, then asked the following questions, "Are any arguments not as important as others?", " Are any arguments unlikely?", "Are there any creative solutions to the problem?", "Is the creative solution practical?", "For any argument, can you think of any argument to the contrary? Or any other likely explanation?" Finally, students were asked if there was an integrative solution. Keeping in mind the instruction was for sixth grade, the lack of distinction between Toulmin argument elements (claim, warrant, data, qualifier, rebuttal) made sense as it simplified the process of evaluating and creating arguments to an appropriate

level. The results from the study were mixed with one positive result that in the experimental-group students engaged in more refutations of counterarguments. These studies using the Vee diagram are important to the current study as the experimental instruction also includes a Vee diagram as part of the pair work.

This trend toward finding a dialectical approach to be successful in teaching argument even at the middle-school level informs the current study as many of these results have found to be similarly true for college students and adults in many cases. For example, studies (Felton, Crowell, & Liu, 2015; Kuh, 2018; Villarroel et al., 2016) showed positive effects on argumentation and reasoning skills after an intervention involving a dialogic and critical-questioning approach. Other studies (Abdollahzadeh, Farsani, & Beikmohammadi, 2017; Pack & Kang, 2017; Stapleton and Wu, 2014; Zhang, 2018) that focus on assessment of argument clearly show that many of the problems found in middle- and high-school students persist in college, particularly for educationally less-prepared students and for students for whom English is a second language. Students with either or both of these characteristics are prevalent in both community colleges and state universities and, therefore, are an important population to research, as the current study does, in in order to investigate ways to improve instruction in argumentative research and writing skills. The complexity of writing from sources and the need for students to develop strategies to accomplish integrating sources into their writing in appropriate ways has been well documented (Cummings, Lai, & Cho, 2016; Mateos et al. 2018); one element of this complexity relates to rhetorical task, so the idea of clarifying and instructing students in argument seems even more important when the argumentative context involves writing from sources (as it most college level argument

papers require).

Other researchers have investigated confirmation bias problem in argumentation (inability to incorporate or rebut other side evidence in an argument) that may impeded students from creating strong arguments. Wolfe (2012) once again examined bias by looking again at the cognitive processes that effect argumentation at both the level of understand and writing arguments. In this article, Wolfe undertook an empirical study to investigate the predictive value of giving students fact-based argument schemas versus balanced-argument-schema instruments; he also considered strength of opinion as a predictor of bias for generating reasons and for writing arguments. The article included a comprehensive literature review on the connection between reasoning and argument skills and on how epistemological belief systems or styles can affect argumentation ability. He found that "reasoning ability, higher–order epistemic beliefs, and the ability to overcome belief biases were associated with reduced fallacies in informal reasoning" (p. 479) and that "epistemological understanding was a significant predictor of the ability to generate arguments, counterarguments, and rebuttals" (p. 479), which concurs with Stanovich (2013) that the frequency of the occurrence of bias is not linked to level of intelligence but the rather to the kind of constructs involved in the argument being considered. Implications about how to teach argument and reasoning possibly indicating that starting off with more tangible or simpler forms of argument is best, then adding complexity to later examples result from the research.

In this experiment, Wolfe (2012) tested the above hypothesis by investigating the differences in performance between students with fact-based versus balanced views of argument. Wolfe designed an instrument and tested it with 63 undergraduate students, a

representative sample. This instrument consisted of a 7-point Likert scale to define the characteristics of a fact-based argument and a balanced argument. The items being rated gave various characteristics of an argument, depending on whether a "fact-based" view or a "balanced view" is supported. For example, a characteristic of a fact-based view of argument is that "a winning argument is a claim supported by fact" (p. 481). A characteristic of a balanced argument is "A strong argument presents both sides of the issue" (p. 481). In the testing phase with the 63 undergraduate students, the instrument had a Cronbach coefficient alpha measurement of .82 for fact-based statements, and a Cronbach coefficient alpha of .79 for balanced argument statements. In the second phase of the study, the researcher tested 85 undergraduates on writing an argument essay. The essays were analyzed for level of myside bias using a variety of criteria to investigate the correlation between myside reasons and myside written argumentation. Wolfe found a positive correlation of r = .62; the higher the score on the balanced-argument Likert-scale test, the lower the myside bias in the actual essay (measured by presence of other-side claims and evidence). The third study investigated to what extent factual and balanced argument views predicted level of myside bias in providing reasons and argument on a topic and whether other side evidence and reasons were provided. In this case, students were asked about their level of agreement or disagreement with a claim, then they had to rate four different arguments: fact-based, balanced, for and against the claim. Wolfe (2012) found that strength of opinion in a student on the topic did predict a preference for fact-based one-sided arguments. In this case, preference for fact-based over balanced arguments was not predictive. This area of investigation into students' ability to appraise critically arguments and determine what evidence presented in them will be useful in

constructing their own argument is not well-covered by the literature and deserves further investigation. The current study will include assessment of an assignment (homework assignment, writing an outline of an argument from sources) in which students must find data and evidence from source articles on their argument topics and use this evidence to create and argument outline.

Another aspect of this study (Wolfe, 2012) is that three relevant empirical studies were detailed. In the set of three studies, Wolfe (2012) focused mostly on the process of designing a sound argument and avoiding myside bias by including attention to alternative claims and evidence, as it pertains to the writing phase of the argument research paper. Only the last study incorporated students' skill in critically reading and evaluating arguments, but this study did not include a determination on how well students could use data from the articles they were evaluating in order to construct their own argument. The current study will investigate this phase of writing an argument and research outline.

One possible reason that this phase (evaluating arguments in sources and selecting data and evidence form them to construct and argument) is not a strong focus of argument researchers is that instruction in this skill is considered part of the information-literacy instruction provided by librarians, rather than part of the writing instruction. Understanding argument, however, is a necessary component of evaluating written sources and selecting appropriate information in constructing a new argument. It is plausible that providing instruction in argument in the topic development phase of research, the search for articles and evidence, and the evaluation of sources. Because these phases, when addressed at all at the college level, are often delegated to librarians

who then provide instruction in them via an "information-literacy," an "embedded" presence in a course, or a lab or course taught in conjunction with a writing course, they do not often incorporate instruction in argument or in critical questioning the validity of an argument. Overall, all of these studies (Hillocks, 2010; Nussbaum et al. 2018; Nussbaum & Schraw, 2007; Quin & Karabacak, 2010; Wolfe, 2012, Wolfe et al., 2009) show that, although introducing instruction in argument schema into the teaching of argument is helpful and some of them (Asterhan, & Schwartz, 2016; Hemberger et al., 2017; Kuhn, 2018; Kuhn et al., 2013; Schwartz et al.; Song & Ferretti, 2010; Villarroel et al., 2016; Wolfe, 2012; Wolfe et al., 2009;) show that adding in dialogue or critical-thinking questions is even more effective, none of them address directly what effect a dialectical method could have on the topic development, research, reading, evaluating, and outline development phase of writing an argument research paper. It is logical that incorporating argument instruction that includes dialogue and critical questioning into the research process would make this instruction more effective. An earlier stage in the process could possibly make these techniques even more effective. In fact, librarians and composition faculty have a long history of collaborating in order to improve the research phase of writing an argument research paper, what follows is a review of this collaboration with a focus on the few studies that include instruction in argument.

Information Literacy and Argument Instruction

When taking the view that writing the argument research paper is a recursive process (Prince, 2007), along with the actual writing of an essay, the other stages -- finding and evaluating relevant and credible sources with information (data, evidence, and ideas) on a topic -- are necessary to construct an argument about it. As presented

previously, this part of the process, learning how to find and evaluate sources of information is often referred to as information-literacy and is taught in collaboration with librarians. Before exploring efforts in collaboration between writing instructors and information-literacy instructors (librarians), a brief overview and definition of information literacy is provided below to indicate how it fits into argument instruction at the college level. Up until the adoption of the Framework for Information Literacy, most academic librarians would agree that information-literacy is defined by the Association of College & Research Libraries (ACRL, 2000) guideline for Information-Literacy that include (a) formulating a research question, (b) understanding the scope of resources needed to answer the question, (c) formulating a search strategy, (d) evaluating sources found using a critical set of criteria, and (e) using information ethically, including citing sources. Information-literacy is taught mainly by librarians in a variety of ways: via a "one-hour-one-shot" (in English Composition or other discipline courses), point-of-need tutorials, integrated tutorials in discipline courses, and stand-alone courses taught alone or as part of first-year experiences or other learning communities.

Owusu-Ansah (2004) discussed the nature of information literacy and growing need for its instruction in academia; he stated that librarians must play a central role in teaching information literacy in collaboration with and alongside subject-area faculty and suggested that librarians and the library be integrated fully into the academic enterprise and into the classroom. He stressed that librarians always have served a dual role as teachers both at the reference desk and in their previous role as bibliographic instructors and that this newer role as information-literacy instructors is not a deviation but a continuation of a long tradition of being educators. He advocated that librarians help

create campus-wide programs of information literacy and actively teach in collaboration

with subject-area faculty and continue to push for comprehensive programs that go well

beyond developing skills in information retrieval but includes "addressing social,

economic, and legal as well as other concepts and issues related to such information" (p.

5). He went on to include issues such as "generation of information, the dynamics of its

organization and processing and the implications of those processes for access, retrieval,

and use". This definition mirrors the Association of College & Research Libraries

guidelines for information literacy that recently have undergone a major revision.

In fact, collaboration between teaching faculty in disciplines and in writing

programs and composition programs has become the norm at most college campuses to

varying degrees. The literature reflects a general preference on the part of practitioners to

for using cognitive-constructivist and social constructivist learning methods in teaching

information-literacy both online and in person that mirrors the emphasis on those theories

in the English Composition literature and practices (Newell, 2011; Prince, 2007;).

Leibiger (2010) reviewed the literature in the area of problem-based learning as

applied to information literacy and also how information literacy has been defined in the

academy and by ACRL. The author advocated for an abandonment of typical "one-hour

one shots" in favor a longer, more collaborative development of problem-based learning

curriculum in the disciplines with information literacy integrated into the process.

Leibiger described the ways in which the current standard approaches are problematic

and also the problem of students' strong preference for searching Google rather than

delving into library-provided sources. She also provided various examples of successful

uses of problem-based learning approaches to information literacy and provides a list of

learning objectives that can be met with this approach. These learning objectives included the development of critical-thinking skills regarding the selection and synthesis of sources, including ones with alternative viewpoints, using higher-level Bloom's taxonomy skills.

MacMillan and MacKenzie (2012) discovered that students in their university's public-relations program were having difficulty relating to and engaging with the scholarly literature in their discipline. So, they implemented an information-literacy component in the research-methods course based on the idea that information literacy needed to be part of a broader program of academic literacy and that the problems students were experiencing were based on "characteristics of the students themselves and of the texts themselves" (p. 526).

The researchers conducted an extensive literature review to investigate the problem and found that students often cite elements of articles that they have not read all the way through or understood thoroughly. Some of the problem may stem from the fact that journals have become more specialized and articles more complex than in the past. In short, students are less prepared to read articles that have become both more proliferate and more complicated. The authors cited a need from the literature to include reading and critical thinking skills in information literacy courses to help scaffold the integration of scholarly sources into student papers.

MacMillan and MacKenzie (2012) in collaboration with the faculty of the Department of Communication Studies began to integrate reading into their information-literacy sessions to create a more meaningful experience for students engaging in the research process, to gain a grounding in public-relations theory, and to be prepared for

graduate school. Students were taught to read article abstracts and develop questions about it. The intervention worked well according to the researchers, improving the level of integration of scholarly sources in to papers. This paper provided literature review and conceptualization of the need to integrate reading skills and questioning skills into information literacy to make it a more meaningful and fruitful experience for students. The researchers showed there is a need to improve students' ability to understand articles of all kinds indepth via the development of critical thinking and reading skills, including those in those working in the context of creating an argument.

Reese (2007) linked the definition of information literacy with "higher-order thinking skills" while acknowledging that some librarians believe focusing on "back to basic" skills is essential (p. 482). She discussed the need for librarians to gain an understanding of theory in cognitive and critical thinking and provided a review of how the term evolved over time in the field of education. She cited Bloom's taxonomy as one key way of thinking about critical thinking. She proposed Bloom's taxonomy as a way to scaffold instruction along with developing a skeptical outlook and being trained in developing critical thinking. Evaluation was seen as one of the highest level of critical thinking activities. Reese then went on to suggest that online tutorials with interactivity with a problem-based structure could be a possible way to achieve the integration of critical thinking with information-literacy. a key area in which information literacy and critical thinking connect in the context of an argument and research paper is the in the development a topic and in the evaluation of source. At these points in the process, providing students with instruction in argument, whether through the Toulmin method or the dialectical method combined with critical questioning would be especially valuable.

In another study, Diekema, Holliday, and Leary, (2011) examined how well a problem-based information-literacy tutorial could help students (n=15) in a school-library-media credential endorsement program engage with their research and think critically about their sources. The researchers provided good background on the problem of students' over-reliance on Google and also on problem-based learning, recent research and its theoretical background. Students who were both undergraduate and graduate level were given the information-literacy tutorial as part of a class; the assignment was to develop a recommendation around health effects from cell-phone use. The tutorial required keeping a journal on the research process, which included many critical-thinking questions relating to the research process, including the process of evaluating sources, which relates to the current study in that it highlights the need for providing an argumentative structure for the phase of an argument research paper involving the search for data and evidence in the construction of the argument.

Diekema et al. (2011) found that the 15 students studied in the class considered many points of view, looked at sources indepth, even considering funding sources for research when considering research quality and potential bias. They also gleaned from journal entries that many students began to apply the process of determining bias to their own theses and were able to analyze their assumptions for potential bias. Its major weakness was the small sample size of 15 students and very unique population it was drawn from. Although it specifically did not use argument schema as a method of teaching evaluation of sources, the problem-based structure of the module lent itself to use of the research journal that contained many critical thinking questions dealing with bias and argument structure. The program was successful for many students, but whether

one could generalize form these data is certainly in question. The process students engaged in while evaluating critically sources through critical-questioning is similar to the Vee diagrams and critical-questioning approaches used in many argument studies (Nussbaum, 2011; Nussbaum & Edwards, 2011; Nussbaum & Schraw, 2007) and to the dialectical approach generally illustrated by many other argument studies (Asterhan, & Schwartz, 2016; Hemberger et al., 2017; Kuhn, 2018; Kuhn et al., 2013; Schwartz et al.(2003); Song & Ferretti, 2010; Villarroel et al., 2016; Wolfe, 2012; Wolfe et al., 2009).

Holliday and Rogers (2013) reported on a study of information-literacy instruction in a college-composition course. Using a constructivist-theoretical orientation, they set out to investigate how their language describing information-literacy processes to students might affect their "engagement" with the material. The researchers explained how essential information literacy learning objectives have become in higher education and discuss how students struggle with research, particularly with reading, understanding, and synthesizing information from sources into their papers. Holliday and Rogers reviewed how students will "patchwrite" meaning take random sentences from articles and insert them into their papers without necessarily understanding context. They discussed how many information-literacy critiques mainly are theoretical, anecdotal, or both and suggested that phenomenographic research predicts that students' success is predicated on what they think research is. For example, it could be "fact finding, balancing information to choose the correct answer, or scrutinizing or analyzing" (p. 258).

Models of information literacy that emphasize context also will bring better results and those that use the dialectical nature of information gathering in real work or

life contexts were Holliday and Roger's (2013) recommendations. They emphasized that "tools" are an essential part of the process of learning how to find, evaluate, and use information, and they developed the idea of tools to include "psychological" tools meaning the conceptualizations of the process involved in research, which will then affect how well students can do a particular activity, that is, it will depend on how helpful the tool concept is. The researchers conducted a qualitative, exploratory, observational study on 19 composition students and observed how the faculty and librarian's discourse effected students' learning processes. The observation focused on seeing a dichotomy between "finding sources" and "learning about" with the first creating a more superficial and latter formulaic treatment of the process by students, being more conducive to close reading of articles and thinking critically about them. Most of the learning activities tended to be framed in the "finding-sources" modality rather than the "learning-about" one. The researchers showed how problematic the usual ways of approaching information literacy can be when critical thinking is one of its most important aims and also illustrated a way forward by rethinking how to present it to students and what conceptual tools would be most useful to them.

This developing focus on critically questioning and contextualizing sources in the context of ongoing scholarly conversations that is an important component of researching and a developing an argument about any topic was further emphasized by the Information Literacy Framework adopted by ACRL (2014) that identified seven "Threshold Concepts" (Meyer & Land, 2003) in information literacy that could be used to guide information-literacy instruction: authority is constructed and contextual, information as a process, information has value, research as inquiry, scholarship as

conversation, and searching as strategic exploration. The two threshold concepts relating to information literacy most relevant to incorporating instruction in dialectic argumentation into instruction in research in the context of the argument research paper are research as inquiry, scholarship as a conversation, and authority as constructed and contextual.

Even before the formal adoption on the ACRL Framework for Information Literacy, some information-literacy case studies did incorporate a focus on argumentation. One of the best studies to show how information-literacy instruction can include argument schema instruction to good results is a case study from Gonzaga University (Alfino, Pajer, Pierce, & Jenks, 2008). This research contained a description of a course taught collaboratively by librarians and other faculty from composition and critical-thinking disciplines that focused on argument and research. Understanding argument, thinking critically, and developing research skills were scaffolded into the course via assignments of developing difficulty developed and taught collaboratively by librarians and other discipline faculty and evaluated in a formative way. The course emphasized teaching students that academic argument was a particular discourse community whose rules could vary by subject area and as such needed to be made transparent to help students find their own voice within it. Alfino et al. (2008) cited Barthelme's essay "Inventing the University " as the basis for this philosophical approach. The three collaborative assignments developed by the composition, critical thinking, and information-literacy (librarian) instructors were (in order of increasing complexity) a Wikipedia assignment, a point-of-view assignment, and a researched argument essay.

The Wikipedia assignment was used to show via the edits on a Wikipedia article how a discourse-community develops around a controversial topic and how various points of view become included (or excluded) in the always emerging product. The Wikipedia article can be seen as a microcosm of any academic discourse community in which articles instead of lines in an article are produced, but in which those articles form part of an ongoing conversation or dialogue, that is, a dialogue into which students themselves may enter by researching and writing papers.

The point-of-view assignment required students to evaluate critically the point of view of an article and explore the editorial point of view of the journal in which it was published. Collaboratively, via a wiki, each student would then post and critique articles with varying points of view on a single topic. Students also worked together on a set topic -- income inequality -- to discover articles with different points of view that they then critically dissected exploring the equality of evidence used in these various articles.

Finally, students graduated to writing a "synthesis essay" on a topic of their own choosing, having had the benefit of exploring how various viewpoints co-exist in the literature and how evidence can be evaluated using various criteria. Exploration of political viewpoints (liberal and conservative) also were used to develop an understanding of point of view when evaluating articles and bias. Alfino et al. (2008) reported that they saw an improvement in students' ability to include alternative perspectives in their final argument research papers, from previous semesters when the course was taught without this collaborative approach and graduated assignments. No actual data were provided to support this claim, so it must be considered as anecdotal evidence, which relates to the current study in supporting the idea that intervention in the

use of critical questioning is productive during the research stage of writing a paper.

Other innovative examples of course-long collaboration between librarians and other faculty teaching argument and research include Kobzina's (2010) semester-length collaboration at U.C. Berkeley in designing and implementing a course called "Introduction to Environmental Studies." This course included analysis used in literature, critical thinking and scientific reasoning to provide students with a solid grounding in how to analyze writing in this area that could be from both the fields of literature and science. The librarian was embedded in the course both virtually by being a co-instructor in the Blackboard course, able to provide reference assistance and participate in discussions, and by providing instruction at various intervals and being in on-ground classes to learn along with students the subject matter being discussed. The class was structured to include local environmental issues such as the student Oak Grove tree-sitting protest (p. 299) and later on environmental issues pertaining to the Sacramento delta area. Students researched and discussed the controversial issues, while being encouraged to consider many points of view. The library sessions were designed to encourage student participation and follow their interests in the topic, modeling research that explores without falling into looking a just one side of the issue. In keeping with literary component of this multidisciplinary course, librarians had students research elements from a selection of a Gary Snyder (environmentalist poet) poems. This example of librarians modeling how to do research by exploring a wide range of resources and perspectives, although compelling in its narrative description, does not offer any empirical evidence for its success. It does support the current studies approach to emphasize critical evaluation of sources and consideration of alternative perspectives as

part of the experimental instruction in argument.

This review would not be complete without mentioning one other case of librarian both coteaching and doing a phenomenographic study (Lupton, 2008) in another environmental science course. This librarian and researcher began with a definition of information-literacy as: "seeking, locating, evaluating, selecting and organizing information" and "using information to synthesize, create new knowledge, communicate, make decisions and problem solve" (p. 400). The first group of characteristics are standard, but the second group go further than most information-literacy sessions attempt to, reflecting an emphasis on "life-long learning" as an aspect of information literacy. This researcher also linked the increased importance afforded to information-literacy by universities as being driven by the increased emphasis on inquiry-based learning that is typically more student driven and active then more traditional forms of learning along with the explosion of knowledge available to students via online databases of journals and of course the Web. Lupton (2008) situated this research in the tradition of phenomenographic studies that sought to discover how students interpreted their own writing of papers within the university environment. In this case, how students interpreted and experienced the research process was the subject of study. Lupton found that students need help moving from a "seeking evidence" modality to a "developing an argument" -- one that Lupton identified as a more advanced and inclusive view of information-literacy; in this case, students also were asked to find social relevance in their topic that involved more self–reflection and evaluation of ideas, relative to other disciplines and to their own point of view. Based on the study results in which Lupton used students' reflections on their processes to come up with these general categories,

Lupton suggested providing students with opportunities to reflect on their own assumptions about the research process and to reflect critically on their own argument construction and evidence gathering processes. This study, also anecdotal, does like the others suggest that the research phase is integral to building an argument and instruction in argument needs to be included in this phase.

Assessment of Argument Soundness

Another problem faced by researchers concerned with students' ability to write strong arguments is assessment. The typical assessment methodology utilized in English Composition is a rubric that contains the following elements: grammar, style, structure, and content (Newell et al., 2011). The strength of the argument in an essay might span the content and structure elements of a rubric, but most often is not included as a distinct measure of the paper's quality. Some argument studies (Antony & Kim, 2015; Macagno, Mayweg-Paus, & Kuhn, 2015) that focused on the dialectical method, have used coding schemes of various kinds to identify and count the argument elements used by students in their discussions. Other studies (Abdollahzadeh, et al. 2017; Stapleton & Wu, 2015) in which students produced written arguments have used a variety of variations on counting Toulmin (or Toulmin-based) elements. Empirical studies focused on argument (Abdollahzadeh et al., 2017; Hemberger et al. 2017; Pack & Kang, 2017; Stapleton & Wu, 2015; Villarroel et al. ,2016; Zhang, 2018) have assessed argument quality by, instead counting, Toulmin elements in arguments created by students. Stapleton and Wu (2014), had concerns that mere counting of elements was not a complete measure of the argument's strength or soundness. To solve this problem, they developed through an empirical process, a rubric that combined counting Toulmin-based elements (claim, data,

counterclaim, data for counterclaim, rebuttal claim and data for rebuttal claim) with scoring these elements on the basis of their relevancy and importance to the argument; the resulting rubric, the Analytic Scoring Rubric for Argumentative Writing (ASRAW), was designed to measure the soundness of an argument, in other words, to assesses the "soundness" of the Toulmin elements by incorporating the relevance and appropriateness of the elements within the context of the overall argument and subject matter. This rubric was tested successfully for reliability and validity by Abdollahzadeh et al. (2017) in their empirical study. It is likely that this rubric would work well in the current study as the researcher is interested in determining the soundness of the arguments produced by students in their argument outlines not just the number of Toulmin elements included. Also, This rubric would work well in assessing argument outlines constructed as students gather information on a topic through research, as it focuses entirely on the quality of argument not writing style or correctness.

Summary

The review of the literature in argument pedagogy, especially those studies focused on the dialectical approach (Asterhan, & Schwartz, 2016; Hemberger et al., 2017; Kuhn, 2018; Kuhn et al., 2013; Newell et al., 2011; Nussbaum, 2011; Nussbaum et al., 2018; Nussbaum & Edwards, 2011; Nussbaum & Schraw, 2007; Schwartz et al.(2003); Song & Ferretti, 2010; Villarroel et al., 2016; Wolfe, 2012; Wolfe et al., 2009) and in information literacy and argument (Diekema, et al., 2011; Hillocks, G. 2010; Leibiger, 2010; Lupton, 2008; Macmillan & MacKenzie, 2012; Reese, 2007) demonstrates that students need explicit instruction and practice in argument before students can be expected to research and write good arguments that avoid myside bias

and include various alternative viewpoints and strong evidence. Determining how argumentative instruction is best carried out for various population groups must continue to be studied. The current study with its community-college population group and its incorporation of research instruction, use of a dialectical process, will add to the literature on this topic and contribute future pedagogy research and design. The models of instruction that stand out as most effective in both the argument pedagogy literature and the information-literacy literature are those that incorporate explicit instruction in argument analysis and also scaffold a dialectical process around argument that engages students in creating critical questions about those arguments, so that students may engage in structured dialogue about claims and evidence on various sides of an argument. The best models of information literacy are those that involve collaboration with writing faculty whether as part of a learning community or via being integrated into a composition or argument course and focus on helping students de-construct their own topics, finding their biases, and incorporating that into their search strategy; then incorporating an understanding of argument and critical questioning into their evaluation of sources. Although critical thinking is often mentioned and focused on in empirical studies in the library literature, an explicit inclusion of argument and critical reflection and questioning is not. The current study will both fill this gap in the information-literacy research and extend the research presented by the argument literature into the community-college population group (most argument pedagogy studies are in middle-school high-school and University level courses) and into the outlining phase of researching and creating an argument.

CHAPTER III

METHODOLOGY

The purpose of the study was to measure to what extent an experimental method of teaching argument incorporating elements from both Toulmin's (2003) structural approach and Walton's (2012) dialectical approach effects first-year community college students' ability to write strong arguments. The working definition of a "strong" argument used in this study reflects common ideas in the literature (Wolfe, Britt, & Butler, 2008) and one that clearly presents a claim, that is backed logically by verifiable evidence from reliable sources, and that includes an acknowledgment of counterarguments and either rebuttals or integration of those arguments in to the claim (Wolfe, 2009). This study is designed to fill the gap in the literature by focusing on teaching argument in a first-year community college composition course in a way that connects critical questioning and dialogue to construct argument outlines that include claims, evidence, counterarguments, and rebuttals.

This chapter provides a description of the methodology, including the research design, study participants, protection of human subjects, and qualifications of the researcher, instrumentation, variable definitions, treatment description, procedures for data collection, research question, data analysis, and limitations of the study.

Research Design

This study was a one-group pretest-posttest research design. This research used a pre- and postrubric evaluation of argument outlines based on material provided to students in the class on specific argument topics for both the pre- and postoutlines and a further rubric evaluation of outlines created by students for homework on their own

research topics, collected at the end of the intervention. Due to Covid-19 and the

subsequent shut-down, the instruction which was originally designed for a face-to face

teaching environment was adapted for use in a synchronous online environment while

maintaining all essential elements. Outlines were evaluated by scoring them using the

Analytic Scoring Rubric for Argumentative Writing (ASRAW), developed by researchers

Stapleton and Wu (2015). This rubric includes categories for claims, counterargument

claims, rebuttal claims, and data (evidence) supporting each of these. The rubric is

designed to evaluate arguments at a more granular level than is possible by simply

counting the number of Toulmin elements in the argument. Instead of focusing on the

surface structure of the argument reflected in the number of elements used, the ASRAW

rubric scoring is determined by the quality of the data and claims presented.

The intervention instruction in argumentation, based on Walton (2013) and

Toulmin (2003), was the independent variable. The instruction consisted of an interactive

presentation on perspective, argumentative structure, and bias, followed by pair and

group work that engaged students in a dialectic process of analyzing an argumentative

topic. Due to Covid-19, the instruction was converted from an in-person design to

synchronous online instruction for both the Spring and Fall semesters of 2020 during

which time the experiment was conducted. The dependent variable is the set of scores on

the ASRAW for the in-class argument postoutlines and for the research paper outlines

completed by students outside of class for homework.

Participants

For this study, the students of the medium-sized community college were from

diverse backgrounds; with many students who were from economically disadvantaged

backgrounds, the first in their family to attend college, or both. The college had the following breakdown for ethnicity: Asian American 34%, Hispanic American 23%, European American 18%, Filipino American 10%, Asian Pacific Islander American 1%, Mixed 5%, African American 3.75%. For gender, the breakdown is male 47%, female 51%, the remainder unknown, and for age, 19 years old or younger, 31%, 20 to 24 years old 38%, and 24 and older 32%. The college served high percentages of returning students, who are part-time, older, working, or a combination of these characteristics, including a large number of "first-generation" college students. Students taking English at this community college may enroll in either one of the first transfer-level English writing courses or English an accelerated reading and writing course that is more advanced than the most advanced English as a Second Language (ESL) course offered by the college and prepares students for the transfer-level English courses. Students are not tested or required to take the accelerated reading and writing course but generally opt-in to take the course if they were counseled by an academic advisor to do so or if they believe they need extra preparation in reading comprehension and writing before taking the transfer-level English course. Other students may have decided to take the 6-unit stretch version of the first transfer-level English course that also offers extra support for less prepared students. Many students taking these courses (accelerated or stretch) have completed courses in ESL, are international students, or are returning older-adult students. Both English courses focused on developing students' essay writing skills, including argumentative and researched-based writing.

The study was conducted in two sections of the stretch 6-unit stretch transfer-level English course taught in Spring semester 2020 and Fall semester 2020 by the researcher. The course enrollment was over 30 students per section.

Demographics of the Classes

Demographic data was collected for both classes and is summarized in Table 1 below. What follows is a presentation of the descriptive and statistical analysis of the data for each of the research questions.

Table 1
Class Demographics for Fall and Spring 2020

Class	ENGL-101AX-45 SP(20)		ENGL-101AX-45 FA(20)	
	total	%	total	%
Ethnicity				
Latinx	4	11	6	20%
Africa American	1	3	1	3%
Asian	27	77	17	57%
Filipino	0	0	2	7%
Native American	0	0	0	0%
Pacific Islander	0	0	0	0%
White	2	6	2	7%
Unknown	1	3	2	7%
Age, years				
< 19	10	29	12	40%
20-24	15	43	8	27%
25-29	4	11	4	13%
30-39	4	11	6	20%
40-49	2	6	0	0%
50+	0	0	0	0%
Gender				
Female	17	49	17	57%
Male	18	51	13	42%
Prior Enrollment				
Prior sem.	30	86	17	57%
Not prior sem.	2	6	7	23%
First-Time	3	9	6	20%

All students participated in the experimental instruction, but only those who sign consent forms, and completed all three outlines were included in the study. Twenty sets of outlines were collected in Spring 2020 and. 23 were collected in Fall semester of 2020. The setting was chosen both because of the researcher's access as a faculty member at this institution and because this is a diverse student body and as such should be generalizable to other student populations.

The demographic data show that the two classes had some differences. For example, The Spring 2020 class had half as many Latinx students, but more Asian students than the Fall 2020 class. The Fall 2020 class also had more students who were 19 or 18 years old, but also more students in the older 25-19 and 30-39 age ranges. More students had been enrolled prior to the current semester in the Spring 2020 class. There were slightly more females in the Spring 2020 class.

Protection of Human Subjects

In accordance with standard research procedures, as required by the American Psychological Association (2012), all results from the study are being kept confidential and anonymous. Additionally, to meet the ethical considerations of research, which is to insure that no harm occurs to the participants, the instructional materials, the letter of consent, and the study procedures and the rubric used for scoring were cleared though the Dean of the English department at the community-college site and through the Institutional Research Board of the researcher's University (University of San Francisco). The Dean of the English department at the community-college site has provided written permission for the study (Appendix A). Students were be told that their participation is voluntary and if they choose to opt out, there will be no adverse effect on their course

grade or aspects of their participation in the course. Because the researcher is also the instructor of record for the course sampled, it was made very clear that participating or not participating will not affect the student's grade.

Of course, the pre- and postoutline and argument research paper outline assignments were a part of the regular content of the course, so all students needed to complete them, but the results were note included in the study for those who opted out. Students were asked to do the pre- and postargument outlines and the inclass pair and group work generated by the experimental instruction, but only data from students who sign the consent form will be included in the study. The consent form (see Appendix C) eliminated any student who is under 18. Students were assured that not signing will not affect their grade and that they could change their minds at any time. Students were told that participating in the study may contribute to better instructional design for other students. All data are being be stored in a secured location accessible only by the researcher.

Qualifications of Researcher

The researcher had taught information literacy, English, and critical thinking at various institutions for 20 years. She has a BA in Philosophy and a Masters in Library and Information Science from University of California, Berkeley and a Masters in English from San Francisco State University.

Instrument

The current study uses the Analytic Scoring Rubric for Argumentative Writing (ASRAW) rubric developed by Stapleton and Wu (2015) that includes the argument elements of claims, data, counterclaim, counterclaim data, rebuttal claim, and rebuttal

data defined in an earlier study by Quin and Karabacak (2010).   Quin and Karabacak asserted the following definitions for components of argument: "Claim: an assertion in response to a contentious topic or problem," "Data: Evidence used to support a claim," "Counterargument claim: The possible opposing views that challenge the validity of a claim," "Counterargument data: Evidence to support a counterargument claim," "Rebuttal claim: Statements in which the writer responds a counterargument by pointing out possible weakness," and " Rebuttal data: Evidence to support a rebuttal claim" (p. 449). Additionally, "data" are defined as taking a variety of forms including, "facts, statistics, anecdotes, research studies, expert opinions, definitions, analogies, and logical explanation" (p. 449). Weaknesses in a counterargument that may be pointed out in the rebuttal include "logical fallacies, insufficient support, invalid assumptions, and immoral values" (p. 449). These definitions are well-established in the literature and have achieved a consensus of validity.

The ASRAW rubric developed by Stapleton and Wu (2015) used the above definitions, but added in a scoring element to measure the level of connectedness between them. An argument outline that has at least one claim, counterargument claim, and rebuttal claim would receive 25 points, 5 points for the claim(s) and 10 points each for the counterclaim(s) and rebuttal claim(s). Then, if these claims are supported with adequate data or evidence and also if counterclaims and rebuttals are related logically, then the maximum score for each category of data (data supporting the claim(s), counterclaim(s), and rebuttal claim(s)) are 25 points each. The maximum total score using this rubric is 100 points. The researchers developed the rubric in an effort to measure the soundness of an argument more effectively than simply counting the

Toulmin elements in argument papers and outlines. The ASRAW rubric allows raters to assign scores that reflect the quality of the students' reasoning, in addition to the number of Toulmin elements present in their arguments. For example, the rubric score is based partly on the degree to which data included in the argument are relevant to the claims, counterclaims, and rebuttals they are purported to support. Scoring guidelines also require the rater(s) to measure the degree to which counterarguments relate to the claims they are supposed to be countering, and likewise rebuttals relate to those counterarguments. Including these components, "acceptability, relevance, sufficiency/adequacy" (Stapleton & Wu, 2015, p. 14) in the scoring, allows for greater accuracy in measuring argument soundness than a simple counting of argument elements would.

Reliability

Researchers, Abdollahzadeh et al. (2017) established reliability for the rubric in their study. They examined "to what extent well-structured arguments were qualitatively sound in their reasoning" (p. 644) in the essays written by 150 Iranian graduate learners of English as a Foreign Language from across 11 universities in Iran, all of the students had obtained BA degree in English and passed the entrance exam for graduate study. The essays collected were 400 words long on topics of topical interest to this group of students, with likely knowledge of the topic, originally chosen from the online database, "Opposing Viewpoint Resource Center" published by Thompson Higher Education. In their analysis, researchers used the definitions of Toulmin elements --data, claim, counterargument, rebuttal-- and reported high interrater reliability values of .91, .96, .86, .84, .85, and .87 for claim, data, counter-argument claim, counterargument data, rebuttal

claim, and rebuttal data, respectively and an interrater reliability of .81 overall using Cohen's Kappa. In the case of any discrepancy in the identification of argument elements, data were negotiated and a consensus was achieved.

The researchers (Abdollahzadeh et al., 2017, p. 650) reported that for the *n*=150 graduate-level students, the means and standard deviations for the various categories of argument structures and support data used by Qin and Karaback (2010) and in the ASRAW rubric were Claim, 1.3 (SD= 0.56); Data (support for Claim), 2.29 (SD=1.05); Counterargument Claim, 0.49 (SD=0.53); Rebuttal Claim, 0.34 (SD=0.47); Counterargument Data, 0.16 (SD=0.37); and Rebuttal Data, .08 (SD=0.27). These means represent only the number of elements counted, similar to what Qin and Karaback had realized.

Abdollahzadeh et al. (2017) had the essays graded holistically; raters were instructed to rate the essays in terms of "overall argument effectiveness," "presence or absence of opposing views," "overall structure," and "overall language use," without focusing on any one category over the other. These served as general indicators of an effective argument. The raters scored 20 randomly assigned papers using the rubric; then they discussed ambiguities in the rubric until a consensual agreement was reached, achieving an interrater reliability rating of .88. Papers scored had a mean of 2.98 (5-point scale) and had an SD of 1.06. The Pearson Product Moment correlation coefficient revealed that "holistic essay scores co-varied significantly positively with the uses of the six elements of the arguments" (p.651).

To investigate to what extent surface argument structure reflected soundness of argument, having graded the papers holistically (see above), a group of 40 papers that

were all at least one SD over the mean for the holistic grading were chosen for evaluation using the ASRAW Rubric, which incorporates scoring for soundness for each category rather than simple counting as had been accomplished initially. The justification for only using the papers that had been graded higher using the holistic scoring was that the researchers were interested specifically in whether a high holistic score correlated with overall soundness of the argument as measured by the ASRAW rubric. Therefore, 40 papers were analyzed using the ASRAW rubric. All papers were graded by two raters. Points of disagreement were sorted out until an interrater agreement of .91 was established for the ASRAW rubric. In this ASRAW rubric, six elements of argument are rated with claims receiving a score of 0 or 5 (present or not present), counterargument claims and rebuttal claims each receiving a score of 0 or 10 (also present or not present), and data supporting each of these three types of claims, receiving a score of 0, 10, 20, or 25, depending on the quality of the data, as described in the rubric. The various scoring levels reflected the level of difficulty of each category to achieve. The highest score achievable using this rubric is 100, requiring a score of 25 on each of the three types of data (supporting claims, counterargument claims, and rebuttal claims), and 10 each for the presence of at least one counterargument and rebuttal claim, and a 5 for the presence of at least one claim.

Abdollahzadeh et al. (2017) concluded from their analysis of ASRAW scores that more emphasis needs to be placed on incorporating evidence into argument structures when teaching argument writing. One also can conclude that the ASRAW rubric does provide a key element missing from a simple counting of claims, data, counterargument claims, counterargument data, rebuttal claims, and rebuttal data, which allows for a

scoring system that ensures that the quality and soundness of the arguments and that reasoning are taken into account.

Researchers Abdollahzadeh et al. (2017) had an interrater reliability coefficient of .91 for the ASRAW rubric, after analyzing 40 papers. In the current study, the rubric was used to analyze a random selection of pre-, post-, and research-paper outlines by two raters, in addition to the researcher and a similar interrater reliability coefficient was expected. The validity of the ASRAW is based on its development from analyzing many argument essays and the fact that researchers, Abdollahzadeh et al., were able to use it in their study to evaluate the soundness of arguments in the essays they collected. The current study added to the research in the area by providing more data about the ASRAW's rubric's reliability and validity.

Procedures for Data Collection

In the current study, the first outline task was a controversial issue (e-cigarettes and vaping), and the students were asked to examine many statements on this issue and create an outline for an argument supporting either of two opposing sides of an argument relating to the issue (Appendix E). The following week, participants received the experimental instructional treatment (Appendix D) consisting of an interactive lecture on argument structure (Appendix F), including counterarguments, and of pair- and group work requiring students to construct outlines relating to a different controversial issue (Green New Deal; Appendix G). An outline for a research paper on another controversial issue (Gun Control; Appendix H) was assigned to students. The following week the postoutline task (Appendix I) was administered. The postoutline task was similar to the preoutline task but on another controversial issue (legalization of Marijuana). The

homework outline on the students' research paper was collected the following week and

evaluated with the same rubric. The research design is presented in Table 2.

Table 2
Research Design

Class	Content
1 (week 10, second class)	Preoutline task administered
2 (week 11, first class)	Treatment: Experimental Instruction
3 (week 11, second class)	Postoutline task
4 (week 13, second class)	Outlines on research papers collected

All four controversial issue topics were selected from a survey given to a previous

group of students at the same institution to assess students' level of interest in various

topics. Topics chosen represented a strong and similar level of interest to mitigate

possible effects of topic interest level on the experiment.

The classes, both 5-unit accelerated 1st-year English Composition were used in

the current study, met twice per week for 3-hour sessions. Due to the Covid-19 shut-

down, these classes were taught synchronously via Zoom. The preoutline assignment was

implemented before the experimental instruction had taken place at week 9 in the second-

class period of that week. The experimental instruction took place over both class

sessions of week 10. Following the experimental instruction provided in week 10, the

postoutline assignment was assigned at the beginning of the first class session of week

11. The outline homework was collected the following week (week 12) also at the

beginning of the first class session of that week.

Leading up to the experimental instruction, students already had completed three

essay units exploring

- Analysis of the climate effects in a particular region,

- Climate and environmental justice for a particular group of people, and

- Analysis of either a political, cultural or religious view of the environment.

The prior essay units also included developing outline, rough drafts, engaging in peer reviews and revisions of drafts. Leading up to the experimental unit, students had developed skills in discussion, research, outlining, and essay writing, while incorporating their research and knowledge and experience in these various topic areas.

Raters

One rater, a long-time English faculty at the community college where the study took place volunteered to participate in the study in addition to the researcher who also served as a rater in this study. The rater participated in a training session before the study began to become familiar with the rubric and practiced using it on sample outlines from a previous class. The first part of this training (one hour) was on identifying claims, counterargument claims, rebuttal claims, and data. As part of this training, the rater was given training handout (Appendix B). After this part of the training, the rater was given an additional 2 hours of training on the use of the ASRAW rubric to assess relevancy and adequacy of reasons provided for argument claims, counterargument claims, and rebuttals, the relevancy of counterargument claims to argument claims and of rebuttal claims to counterargument claims. The rater used previously collected outlines from past classes to conduct the training. During this session, the rater performed a critical

evaluation of the rubric and how to apply it to the evaluation of the outlines. As a result, some changes were made to the rubric based on the experiences and judgement of the raters. These changes consisted of making the descriptions of evidence for the counterargument claim and rebuttal claim more consistent with the description of evidence for the claim and also using the scores 0, 5, and 10 for the counterargument claim and the rebuttal claim. The raters needed the score of 5 for cases when a claim was implied or partially articulated. One of the two English faculty raters was unable to complete the rating, so a new rater, another colleague of the researcher who had conduct similar research using rubric analysis took over after receiving identical training via Zoom. This new rater scored the outlines originally assigned to the rater who left the project.

After this training sessions were completed, the rater was given 10 outlines randomly selected from each of set of the preoutline arguments, the postoutline arguments, and the research-paper argument outlines collected from this study from the Spring semester 2020 class and additional five from each set from the Fall 2020 class. Interrater reliability was established for scoring the outlines using the ASRAW (Stapleton & Wu, 2015) rubric by comparing scores from the additional rater to those previously scored by the researcher, after any discrepancies have been discussed and resolved. The results of the interrater reliability process are in Table 3.

Only outlines completed by students who signed consent and who completed all three types of outlines were included in the study. All data collected were entered into SPSS, and all materials collected are kept in a locked file cabinet by the researcher.

Table 3

Reliability Percentage Scores for Rubric for Claim, Claim Evidence, Counter-Argument Claim, Counter-Argument Claim evidence, Rebuttal Claim, Rebuttal Claim Evidence

Semester	Claim	Claim Evidence	Counter-claim	Counterclaim evidence	Rebuttal claim	Rebuttal Evidence
Fall 2020	100.00%	93.33%	100.00%	86.67%	100.00%	93.33%
Spring 2021	100.00%	93.33%	100.00%	100.00%	100.00%	93.33%

Description of the Intervention

The experimental instruction focused on teaching students how to understand and create arguments. The methodology used was based upon a combination of Toulmin's (2003) structural approach and Walton's (2013) dialectical approach and was informed by other similar studies (Anderson et al., 2001; Nussbaum & Edwards, 2012; Nussbaum et al., 2018; Rapanta et al., 2013; Wolfe, 2011; Wolfe et al., 2016; Zhang, 2018) from the literature who used one or both of these approaches to teach argument. The experimental instructional took place in two 1st-year community-college English classes during weeks 9 to 12 of the 15-week semester.

The class focused on teaching students to read critically and write essays on various topics using material both provided by the instructor and researched by students. Each essay unit for the 15-week course took up 3 to 4 weeks of course time. The course was taught biweekly evenings for 3 hours per class. Due to Covid-19, the course was taught via Zoom. One part of one class session in week 9 was used to administer a preoutline test before initiating the intervention. Before beginning the experimental instruction in week 10 of the course, students had completed 3 short essays of increasing length and complexity, one compare and contrast, one analysis, and one cause and effect:

Each essay unit requires students to complete a process of reading source materials,

discussing and researching the topic, brainstorming, outlining, writing a rough draft,

completing a group peer review on the rough drafts, revising the rough draft, and finally

creating a final draft to submit.

Table 4
Description of Study

Class	Treatment:
1 (week10)	**Preoutline assignment (see Appendix E)** Lesson Plan, includes preoutline assignment on controversial issue 1(e-cigarettes/vaping)
2 (week 11)	**Instruction via an interactive PowerPoint (see Appendix F)** in argument focusing on argument structure and understanding bias using method based on Toulmin and Walton **Inclass pair work** (**see Appendix G**) using dialectical questioning method: a) Individually: Students create an outline on controversial issue 2 (Green New Deal) b) In pairs, students dialog about outlines using critical questioning method c) In groups of four, construction of poster integrating both sides of argument incorporating information from both sides
3 (week 11)	**Postoutlining assignment on controversial issue 3** (Marijuana Legalization) (**see Appendix I**)
4 (week 13)	**Homework due: (See Appendix H)** Creation of outline for research paper on controversial issue 4 (gun control)

The intervention (see Table 4) followed the preoutline test administered the

previous week, with an interactive lecture that included a PowerPoint with both visual

and verbal information, followed by pair work in which students collaborated in creating

an argument outline on a controversial issue, concluding with a group project, creating of

a poster incorporating the results of the pair work and presenting a culminating argument outline. After the instruction concluded, homework, consisting of each student creating an outline for their controversial issue research paper was assigned. As in various studies on argument pedagogy (Anderson et al., 2001; Nussbaum & Edwards, 2012; Rapanta et al., 2013; Wolfe 2011; Wolfe et al., 2008; Zhang, 2018), the intervention instruction focused on identifying argument structure, argument elements (including claims, data or evidence, counterargument claims, rebuttals), identifying and analyzing bias, identifying logical connection of data or evidence to claims, viewing arguments as a dialogues between competing counterclaims, and applying these concepts in constructing robust argument outlines. The visual elements (photographs) were used during the interactive lecture phase of instruction to introduce the concept of perspective and bias via an interactive lecture including a PowerPoint presentation. The pair work was be conducted using a "Vee Diagram" (Nussbaum & Edwards, 2011; Figure 2) that allowed students to visually represent both sides of an argument by listing claims, evidence and critical questions. The Vee diagram was also used as a preliminary step when students construct their written outlines on their research papers for homework. Only textual elements of the outlines will be evaluated using the ASRAW rubric.

Before the treatment, students completed a preoutline on a controversial issue. The pair work used a second controversial issue, the postouline used a third issue, and the essay outline a fourth. To avoid skewing the results by including topics of different levels of student interest and thus different potentials for student levels of myside bias, a survey was administered to a similar English class taught by the researcher in the Spring of 2019 to assess levels of student interest in various topics. The survey had a five-point

scale, *very interested, interested, somewhat interested, neutral, not interested.* The results

are reported in Table 5 below.

Table 5
Ranking of Topics by Interest in a First-Year Community-College English Class, N=30

Ranking	Topic	Point Total	Mean
1	Gun Control	123	4.1
2	e-cigarettes/vaping	104	3.3
3	Green New Deal	97	3.2
4	Climate justice	95	3.2
5	Universal health care	94	3.1
6	Marijuana legalization	89	2.9
7	Voting Rights	88	2.9
8	Immigration Asylum	87	2.9
9	Environmental Justice	83	2.7
10	College Affordability	81	2.7
10	#BlackLivesMatter	81	2.7
11	LGBQT rights/military	80	2.6
12	Indigenous right to land	79	2.6
13	Reproductive Rights	78	2.6
13	#Keep it in the ground	78	2.6
14	#Me too	77	2.6

Selection the four topics needed for the preoutline, the postoutline, the pair and

group work, the controversial issue research paper, and the homework outline was made

using these results and considering the availability of resources appropriate to the scope

of each task. The preoutline topic selected was e-cigarettes(vaping), the pair- and group-

work topic selected was the Green New Deal, the postoutline topic selected was

legalization of Marijuana, and the controversial issue topic for the research-paper outline

that was selected was gun control as it was the highest scoring topic. Although a goal was

to have equal levels of interest, the highest interest-level topic was used for the research

paper as students would need to have sustained interest in the topic over several weeks.

The treatment included an interactive PowerPoint© presentation that introduced

students to argument structure, the connection between data or evidence and claims, the power of perspective via various photographs, and also serve as an introduction to the concept of bias. Then students will work in pairs, using the Vee diagram approach, creating opposing argument outlines about the Green New Deal. Then students discussed the two opposing sides of the controversy, asking critical questions, weighing evidence and claims, and finally creating a new argument incorporating material from both sides. Then students created posters communicating their argument in larger groups. These poster arguments created by students in groups were critiqued by the whole class by discussing the qualities of their components: claims, evidence, soundness, inclusion of counter arguments and rebuttals. Students were assigned the homework outline that includes researching and outline using the Vee diagram process their research paper on gun control, specifically, should the United States have stricter gun control laws. The following class, the postoutline test on Marijuana legalization was assigned.

Data Analysis

This study addressed the following research questions:

1. To what extent is there a difference between total scores on the ASRAW for the preoutlines, postoutlines, and the research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

2. To what extent is there a difference in the scores from the claim and data supporting claim sections of the ASRAW for the preoutlines, postoutlines, and the research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

3. To what extent is there a difference in the scores from the counterargument

claim and data supporting the counterargument claim sections of the ASRAW for the preoutlines, postoutlines, and the research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

4. To what extent is there a difference in the scores from the rebuttal claim and data supporting the rebuttal claim sections of the ASRAW for the preoutlines, postoutlines, and the research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

The purpose of the proposed study was to investigate to what extent a method of teaching argument using the Toulmin (2003) and Walton (2013) theories of argumentation, effects the quality of the argument outlines created by 1st-year college students on a controversial topic in both an inclass test situation and in a take-home research-paper context. Outlines were used rather than essays because outlines are a key stage in the writing and researching process in which the student creates the argument structure for the essay. The data analysis addressing research question 1 consisted of a paired-sample *t* test of the total rubric scores on all three sets of outlines collected and for questions 2, 3, and 4 paired-sample t tests on the partial rubric scores on the rubric form the claim and data, the counterargument claim and data, and rebuttal claim and data sections of the ASRAW rubric. Means and standard deviations were reported along with the results of the paired-sample *t* tests and effect sizes.

CHAPTER IV

RESULTS

The purpose of this study was to measure to what extent an experimental method of teaching argument incorporating elements from both Toulmin's (2004) structural approach and Walton's (2013) dialectical approach effects first-year college students' ability to write strong arguments. The working definition of a "strong" argument used in this study, which reflects common ideas in the literature (Wolfe et al., 2008), is an argument that clearly presents a claim backed logically by verifiable evidence from reliable sources and that includes an acknowledgment of counter-arguments and either rebuttals or integration of those arguments in to the claim (Wolfe, 2009). This study was designed to fill the gap in the literature by focusing on teaching argument in a first-year-college composition course that connects the researching and writing of arguments emphasizing the importance of critical questioning as a strategy in building a strong argument incorporating alternative viewpoints, creating a dialogue between claims and counterclaims.

This study took place at a medium-sized community college, in an accelerated 6-unit composition course, required for students not going directly into first-year English. The students were very diverse and representative of Northern California's demographics, with many students being first- or second-generation immigrants, from economically disadvantaged backgrounds, the first in their family to attend college, or both. There were many students for whom English is a second language, including some international students. It is important that these students learn argument, including an understanding of bias that they can transfer to subsequent course work in English and

other subjects and for the purposes of life-long learning.

The results of the study that consisted of statistical analyses on the rubric scores for the pre-, post-, and research-paper outlines collected from the Spring 2020 (n=20) and Fall 2020 (n=23) courses are provided. This chapter begins with the differences between the two classes, and then presents the results of each of the four research questions for each of the classes. The results reported include the descriptive statistics for the rubric scores corresponding to each research question (total, claim totals, counterargument-claim totals, and rebuttal-claim totals) for each of the classes on all three sets of outlines. The results also included statistical analyses conducted for statistical significance and effect sizes.

To investigate if there was a statistical difference between the classes, an independent- samples t test was conducted on the preoutline score means from the Spring and Fall 2002 classes. The differences between means and standard deviations for preoutline scores on the rubric for both classes are presented in Table 6. Students in the Fall 2020 class had a higher

Table 6

Means, Standard Deviations, and Independent-Samples t-Test Results for Preoutline Scores for Students in the Spring 2020 and Fall 2020 Classes

Semester	*N*	Mean	SD	*T*	*df*	*n²*
S20	20	30.25	10.06	2.37	41	0.12*
F20	23	39.78	15.33			

*Statistically Significant at .05 level

mean on the preoutline than the students in Spring 2020. Because the independent-sample t test conducted on the preoutline scores from Spring 2020 and Fall 2020 semesters

showed a statistically significant difference between the means with a moderate effect size, each of the four research questions was addressed separately for each class. experienced synchronous online What follows is a report of results for each of the four research questions.

Research Question One

1. To what extent is there a difference between total scores on the ASRAW for the preoutlines, postoutlines, and the research-paper outlines for students who had the experimental instruction based on Toulmin and Walton?

According to results in Table 7, for both Spring and Fall classes there was a positive change in means from pre- to postouline and from pre- to research-paper outlines; whereas the Spring class also showed a positive change in mean score from post- to research-paper outline, the Fall course showed a negative change for that pair.

Table 7
Means and Standard Deviations for Preoutline, Postoutline, and
Research-Paper Outline Total Rubric Scores for
Spring (n=20) and Fall (n=23) Classes

Outline	Class	Mean	SD
Pre	Spring	30.25	10.06
	Fall	39.78	15.33
Post	Spring	42.00	11.17
	Fall	63.70	16.04
Research	Spring	55.25	14.00
	Fall	63.48	12.92

For the data in Table 8, all pairs in the paired-sample *t* test are statistically significant, except for Fall 2020 postoutline and research-paper outline. Also provided in the table are the paired-sample effect sizes, Cohen's *d,* by outline pair and class. The

effect sizes are large for all pairs except for the research-paper and postoutline scores for

Fall 2020. The largest effect size for both classes was from preoutline scores to research-

paper scores with effect sizes of greater than 1. The next highest for the Fall 2020 class

was form pre- to postoutline scores, with a negative effect size from post to research

paper scores. In contrast, the effect sizes were large (greater than .8) for both pre- to

postoutline scores and post- to research-paper outline scores for the Spring 2020 class.

Table 8

Paired-Sample t test with Mean Differences, Standard Deviation Differences, t, Degrees of Freedom, and Cohen's d for Total Differences Rubric Scores for Pair 1(Preoutline and Postoutline), Pair 2 (Research-Paper Outline and Postoutline), and Pair 3 (Preoutline and Research- Paper Outline) for the Spring (n=20) and Fall (n=23) Classes

Pair	Outline	Class	Mean	SD	df	T	Cohen's d
1	Post-pre	Spring	11.75	14.62	19	3.59*	0.80
		Fall	23.91	22.15	22	5.18*	1.08
2	Res-post	Spring	13.25	14.26	19	4.15*	0.93
		Fall	- 0.22	18.68	22	-0.06	-0.01
3	Res-pre	Spring	25.00	19.87	19	5.63*	1.26
		Fall	23.70	19.44	22	5.85*	1.22

*Statistical significance at .05 level

Research Question Two

2. To what extent is there a difference in the scores from the claim and data

   supporting claim sections of the ASRAW for the preoutlines,

   postoutlines, and the research-paper outlines for students who had the

   experimental instruction based on Toulmin and Walton?

To answer this question, the descriptive statistics including means and standard

deviations were computed, and the paired-sample *t* tests and Cohen's d for effect size was

computed.

Table 9

Means and Standard Deviations for Claim and Claim-Evidence Combined
Scores on Rubric for Preoutlines, Postoutlines, and Research-Paper
Outlines for Spring (n=20) and Fall (n=23) Classes

Outline Claim	Class	Mean	SD
Pre	Spring	24.50	4.26
	Fall	26.96	4.19
Post	Spring	26.00	2.62
	Fall	27.61	2.97
Research	Spring	25.50	2.76
	Fall	26.96	2.49

Table 10

Paired Sample t-Test Results with Mean Differences, Standard Deviation Differences,and
Cohen's d for the Claim and Claim Evidence Rubric Scores for Pair 1, (Preoutline
and Postoutline), Pair 2 (Research-Paper Outlines and Postoutlines scores),
and Pair 3 (Preoutlines and Research-Paper Outlines Scores)
for Spring (n=20) and Fall (n=23) Classes

Pair	Outline	Class	Mean	SD	df	T	Cohen's d
1	Post-pre	Spring	1.50	4.62	19	1.53	0.32
		Fall	0.65	5.29	22	0.59	0.12
2	Res-post	Spring	-0.50	2.76	19	-0.81	-0.18
		Fall	-0.65	2.74	22	-1.14	-0.24
3	Res-pre	Spring	1.00	5.28	19	0.85	0.19
		Fall	0.00	5.00	22	0.00	0.00

For claim and claim-evidence score means, as indicated by results in Table 9,

results show a slight increase in means from pre- to postoutlines for both Fall and Spring

classes, and also for Fall for pre-to research-paper outlines, but no increase for Spring for

pre-to postoutline means. For Fall and Spring classes, there was a slight decrease from

post- to research-paper outline claim and claim-evidence total means.

There were no statistical differences between total claim scores (claim and claim-

evidence scores combined) from pre- to postoutline, pre- to research paper outline, and

post- to research-paper outline (Table 10). Students are providing a claim and evidence

for a claim even when learning argumentation at a basic level.

Research Question Three

3. To what extent is there a difference in the scores from the counterargument claim and data supporting the counterargument claim sections of the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who had the experimental instruction based on Toulmin and Walton.

Descriptive statistics including means and standard deviations for counterclaim and counterclaim-evidence scores combined are reported in Table 11, and the paired-samples *t* tests and Cohen's d for effect size can be found in Table 12.

Table 11

Means and Standard Deviations for Counterclaim and Counterclaim Evidence Totals on Rubric from Preoutlines, Postoutlines, and Research Paper Outlines for Spring (n=20) and Fall (n=23) Classes

Outline Counterclaim	Class	Mean	SD
Pre	Spring	4.00	7.36
	Fall	8.91	9.40
Post	Spring	12.00	9.65
	Fall	21.30	9.91
Research	Spring	18.00	7.50
	Fall	23.91	5.00

The means demonstrate increases from pre- to postoutline and pre- to research-paper outline and post- to research-paper outline for the counterclaim and counterclaim-evidence total scores for both the Spring and Fall semesters. Increases are greater for pre- to postoutlines for both classes than for postoutlines to research-paper outlines increases, which are greater for Spring than for Fall classes.

The data in Table 12 indicate that the change for both Spring and Fall classes in scores from pre- to postoutline, and for pre- to research-paper outline is statistically significant; the change in scores is also statistically significant for post- to research-paper outline for the Spring, but not for the Fall classes that mirrors the results for Questions One on the totals for outlines. Effect sizes also mirror findings from the first research question on total outline scores. Effect sizes were largest from pre- to research paper outline for both classes, greater than 1 and then also large, greater than 0.80 for the Fall classes difference in counterargument and evidence difference in scores from pre-to postoutline. Finally, a medium score, less than 0.80, of .56 was found for the Fall difference in counterargument and evidence scores from post- to research-paper outlines, which also mirrors what was found for total difference in scores for this category.

Table 12

Paired-Sample t Tests with Mean Differences, Standard Deviation Differences, t, Degrees of Freedom, and Cohen's d for the Counterclaim and Counterclaim Evidence Rubric Scores Combined for Pair 1, (Preoutline and Postoutline), Pair 2 (Research-Paper Outlines and Postoutlines Scores), and Pair 3 (Preoutlines and Research-Paper Outlines Scores) for the Spring (n=20) and Fall (n=23) Classes

Pair	Outline/Counterclaim	Class	Mean	SD		*T*	Cohen's *d*
1	Post-pre	Spring	8.00	12.39	19	2.89*	0.65
		Fall	12.39	13.56	22	4.38*	0.91
2	Res-post	Spring	6.00	10.34	10	4.92*	0.58
		Fall	2.60	10.86	22	1.15	0.24
3	Res-pre	Spring	14.00	10.73	19	2.60*	1.10
		Fall	15.0=	10.22	22	7.04*	1.47

*Statistical significance at .05

Research Question Four

4. To what extent is there a difference in the scores from the rebuttal claim and data supporting the rebuttal claim sections of the ASRAW for the preoutlines, postoutlines, and the research-paper outlines for students

who have had the experimental instruction based on Toulmin and

Walton?

To answer this question the descriptive statistics including means and standard

deviations were collected and correlation and paired sample t tests were conducted, and

Cohen's d for effect size was determined. As indicated in Table 13, mean scores for

rebuttal and rebuttal evidence show an increase from pre- to postouline and from pre- to

research-paper outline for both classes. But for post- to research-paper outlines there was

an increase for the Spring class, but a slight decrease for the Fall class.

The statistical significance for rebuttal results diverged slightly from the total outline and

counter-argument and evidence results. According to results shown in Table 14 both

classes have statistically significant results for differences in scores for pre- and research-

paper rebuttal and evidence totals. Additionally, as noted in Table 14, the Fall class has

statistical significance for pre- and postoutline rebuttal and evidence changes in scores

and the Spring class had statistical significance for post- to research-paper outline

changes in rebuttal and evidence scores.

Table 13
Means and Standard Deviations for Rebuttal and Rebuttal Evidence Scores on Rubric
Preoutlines, Postoutlines, and Research-Paper Outlines for
Spring (n=20) and Fall (n=23) Classes

Outline Rebuttal	Class	Mean	SD
Pre	Spring	1.75	5.91
	Fall	3.91	5.63
Post	Spring	4.00	4.47
	Fall	14.78	9.59
Research	Spring	11.75	9.63
	Fall	12.61	9.28

Effect sizes are large, greater than .80, for both Spring and Fall pre- to research-

paper outline rebuttal and evidence scores. The effect size was also large for post-to

research-paper outline score differences for rebuttal and evidence claims for the Spring

class.

Table 14
Paired-Sample t Test with Mean Differences, Standard Deviation Differences, Degrees
of Freedom, and Cohen's d for the Rebuttal Claim and Rebuttal Claim-Evidence
Rubric Scores for Pair 1 (Preoutline and Postoutline), Pair 2 (Research-
Paper Outline and Postoutline), and Pair 3 (Preoutline
and Research-Paper Outline) for the Spring
(n=20) and Fall (n=23) Classes

Pair	Outline/Reb	Class	Mean	SD	df	t	Cohen's d
1	Post-pre	Spring	2.20	6.60	19	1.53	0.34
		Fall	10.87	10.80	22	4.81*	1.00
2	Res-post	Spring	7.70	8.80	19	3.93*	0.88
		Fall	- 2.17	12.00	22	-0.87	-0.18
3	Res-pre	Spring	10.00	10.60	19	4.20*	0.94
		Fall	8.70	10.00	22	4.16*	0.87

*Statistical significance at .05

Summary of the Results

Overall, the data showed that there was trend toward statistically significant

differences in means based on the paired-sample *t* tests for the pre- and postoutline pair,

the pre- and research-paper outline pair, and the post- and research-paper outlines pairs

on the total outline scores and on the counter-argument and evidence and rebuttals and

evidence for both Spring and Fall 2020 classes. All of these pair-sample *t* tests were

statistically significant, except for post- and research-paper outlines for Fall 2022 for total

and counter-argument and counter-argument evidence combined, and pre- and

postoutlines and post- and research-paper outlines for rebuttal and rebuttal evidence

combined. Effect size, as measured by Cohen's d, for pairs that were statistically

significant were all large, except for counter-argument and counter-argument evidence

for pre- and postoutline for the Spring 2020 class, and post- and research-paper outline

for the Fall 2020 class that were both medium.

CHAPTER V

SUMMARY, LIMITATIONS, DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter consists of a summary of the study including the purpose of the study, the theoretical framework, the methodology, and the research questions, and a summary of the findings, which is followed by the limitations of the study, a discussion of the findings for each research questions, conclusions, implications for future research and for pedagogy, and recommendations

Summary of the Study

The purpose of this study was to measure to what extent an experimental method of teaching argument incorporating elements from both Toulmin's (2004) structural approach and Walton's (2013) dialectical approach effects first-year college students' ability to write strong arguments. This experimental instruction used critical questioning as a strategy in building a strong argument, incorporating alternative viewpoints, and creating a dialogue between claims and counterclaims is emphasized. The working definition of a "strong" argument used in this study, which reflects common ideas in the literature (Wolfe et al., 2008), is an argument that clearly presents a claim backed logically by verifiable evidence from reliable sources and that includes an acknowledgment of counterarguments, including the evidence supporting them, and either rebuttals with evidence or integration of those arguments into the claim (Wolfe, 2009). The effect of the experimental instruction was measured by scoring argument outlines created by first-year college students on a controversial topic in both an inclass test situation and in a take-home research paper context. This study was designed to fill

the gap in the literature by focusing the outline stage in writing an argument essay in a first-year-college composition course because outlines are the key stage in the writing and researching process in which the student creates the argument structure for the essay.

This study gauged the efficacy of an experimental instruction method, by collecting and scoring students' pre- and postoutlines of arguments on topics involving controversial issues and students' argument research-paper outlines using the Analytic Scoring Rubric of Argumentative Writing (ASRAW; Stapleton & Wu, 2015). Scores on these three sets of outlines in each class included in the study (Fall and Spring of 2020) were compared to measure the efficacy of using the experimental instructional approach. The instruction was designed to develop students' understanding of bias in the context of building an argument by helping students learn to explore and integrate alternative viewpoints, to reflect on their own assumptions, to discover bias in sources, and ultimately to build strong arguments from reliable sources that take more than one perspective into account. The rubric analysis was based on outlines that incorporate the basic elements of a strong argument as defined above, both before and after this instructional method was employed. The pre- and postoutlines of arguments, constructed before and after the experimental instruction were collected and scored along with the research-paper outlines. The instruction consisted of an interactive lecture and pair and group work on a controversial issue in class.

To accomplish the purpose of this study the following four research questions were used: Based on the above description of the methodology and research focus of the study, these are the research questions that guided this study.

1. To what extent is there a difference between total scores on the ASRAW for the

preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

2. To what extent is there a difference in the scores from the claim and data-supporting claim sections of the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

3. To what extent is there a difference in the scores from the counterargument claim and data supporting the counterargument claim sections of the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

4. To what extent is there a difference in the scores from the rebuttal claim and data supporting the rebuttal claim sections of the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

This study took place at a medium-sized community college, in an "extended" 6-unit composition course, designed for students needing more support than a traditional 3- or 4-unit first-year English Composition course. This course differed from the regular first-year English Composition course by providing additional instruction on reading comprehension, sentence development, and paragraph development. The student population of this community college and of this course was very diverse and representative of Northern California's demographics, with many students being first- or second-generation immigrants, from economically disadvantaged backgrounds, the first in their family to attend college, or a combination. Many students in the class were

English as second-language learners, including some international students.

At least 29% of first-year students at 4-year institutions and 39% at 2-year institutions take a remedial course (Chen, 2016), and more students may need instruction in basic skills. Some states, including in California, with Assembly Bill 705, have restructured remedial education to eliminate remedial courses, replacing them with first-year mathematics and English courses incorporating additional support (Hern et al., 2020), but the need to address teaching basic-level research and writing skills in all first-year college-level English courses remains even with the shift to integrating these students in, new "stretch" courses with extra writing support.

Results of studies (Kuh et al., 2008; Nelms & Dively, 2007; Wardle, 2007) indicate that how writing is taught is more important to achieving student learning outcomes than the amount of writing. Instruction in writing and argumentation is most effective when creating opportunities for "deep-learning" discussions (Nelms & Dively, 2007) among peers and engagement with the material to encourage transfer-level learning to other courses, thereby increasing the likelihood of a student staying in college and graduating. Wardle (2007) emphasized a sociocultural approach in which developing students' abilities to contextualize and decontextualize learning processes is important to achieve transfer of learning to new situations.

The most common model for argument used by college-writing instructors is Toulmin's (2003) model that comes from the rhetorical- or persuasive-tradition argument handed down from the time of Aristotle (Fulkerson, 1996; Newell et al., 2011; van Eemeren et al., 1996). The Toulmin method (2003) has been used extensively in teaching argument analysis in rhetoric and composition courses (Graff, 2003; Newell et al., 2011).

The method breaks arguments into claims, evidence, warrants, rebuttals (counterarguments) and qualifiers (exceptions to the claim), and backing (commonly accepted ideas or facts). This model is often simplified in various ways and is used to help students understand how providing a counterargument strengthens an argument. Having this understanding also can help students avoid missing evidence that does not conform to their own assumptions and biases (Wolfe, 2012).

Newer models of argumentation, such as Frans van Eemeren's (1996) pragma-dialectics and Douglas Walton's (2013) dialectic schemas create a questioning process whereby a greater range of claims and counterargument claims are interrogated, weighed, and used to modify each other until the topic is fully understood and a balanced position is achieved. Researchers (Nussbaum & Edwards, 2011; Nussbaum et al., 2019; Song & Ferretti, 2012; Villarroel et al., 2016) have applied Walton's (2013) argument schemas to the teaching of the argument essays by having students use critical questions to both to evaluate and generate ideas on a controversial topic.

The experimental instruction developed for this study incorporated active learning, using visual and verbal modes of instruction, collaborative work and opportunities for deep engagement, discussion, and thinking. The pedagogical design incorporated a social constructivist approach that valued the diverse demographics backgrounds of the students and their lived experiences. The goal was to investigate whether incorporating direct instruction in argument schemas such as Toulmin's (2003) model (Nussbaum 2011; Nussbaum & Edwards, 2011; Rex et al., 2010; Wolfe, 2008) and in dialectic questioning (Nussbaum, 2011; Nussbaum & Edwards, 2011; Nussbaum et al., 2018; Song & Ferretti, 2012; Villarroel et al., 2016) increased student ability to construct

strong arguments inclusive of good evidence, counterarguments and rebuttals, from sources provided by the instructor in the case of the postoutlines and from sources found by the students in the case of the research-paper outlines. In the current study, an experimental instructional approach was designed and implemented in two sections of a first-year college course at a 2-year state institution that recently had converted all remedial-level English classes into 6-unit first-year English courses with integrated added support for students, including extra instruction in research and writing skills.

The experimental instruction focused on teaching students how to understand and create arguments. The methodology used was based on a combination of Toulmin's (2003) structural approach and Walton's (2013) dialectical approach and was informed by other similar studies (Anderson et al., 2001; Nussbaum et al., 2018; Nussbaum & Edwards, 2011; Rapanta et al. 2013; Song & Ferretti, 2012; Villarroel et al., 2016) from the literature who used one or both approaches to teach argument. The experimental instructional took place in two first-year community-college English classes during weeks 9 to 12 of the 15-week semester.

The class focused on teaching students to read critically and write research essays on various topics. The course was taught biweekly evenings for 3 hours per class. Due to Covid-19, the course was taught via Zoom. Leading up to the experimental instruction, students engaged in three essay units relating to climate change, environmental justice, and cultural attitudes toward the environment. In these essay units, students read Andrew Hoffman's book, *How Culture Shapes the Climate Change Debate,* and Wangari Maatai's book, *Replenishing the Earth.* These books were selected to provide students with a global and cross-cultural perspective on climate change and environmental justice

while familiarizing students with the polarization of the political debate on climate change in the United States. These works were used as the basis for both synchronous and asynchronous class discussion. The essay units also included developing outline, rough drafts, engaging in peer reviews and revisions of drafts. So by the time students began the experimental unit, they had already been able to develop and practice discussion, research, outlining, and essay writing skills using the three paper topics that included analysis of the climate effects in a particular region, on a particular group of people, and analysis of either a political, cultural or religious view of the environment. In all of these papers, students were encouraged to include their own knowledge and experiences wherever relevant while also incorporating new knowledge from the course readings discussion and their own research using library databases and other sources.

Then, a preoutline was administered in week 9, before initiating the intervention. The intervention consisted of an interactive lecture that included both visual and verbal information. As in various studies on argument pedagogy (Anderson et al., 2001; Nussbaum & Edwards, 2012; Rapanta et al., 2013; Song & Ferretti, 2012; Villarroel et al., 2016), the intervention instruction focused on identifying argument structure, argument elements (including claims, data or evidence, counterargument claims, rebuttals), and applying these concepts in constructing robust argument outlines. The visual elements (photographs) used during the interactive lecture phase of instruction to introduce the concept of perspective and bias.

The slide show was followed by pair work in which students collaborated in creating an argument outline on a controversial issue, the Green New Deal, concluding with a group project, creating of a poster incorporating the results of the pair work and

presenting a integrative argument outline. After the instruction concluded, a postoutline was administered, and then homework, consisting of an outline for their controversial issue research paper on some facet of gun control, was assigned. The Vee diagram, used in the pair and group work also was used as a preliminary step when students construct their written outlines on their research papers for homework.

Pre- and postoutlines on controversial issues and argument research-paper outlines were scored using the ASRAW (Stapleton & Wu, 2015) and then paired-sample *t*-test analysis was conducted to measure the efficacy of using the experimental instructional approach described above. Interrater reliability was established for scoring the outlines using the ASRAW rubric by comparing scores from a random sampling of 5 pre-, post-, and research-paper outlines collected for the study from each of the Spring 2020 and Fall 2020 classes that were rated by the researcher and by an additional trained rater. Any discrepancies found between scores, were then discussed, and resolved. The reliability scores ranged from 86% to 100%, See Table 4 in chapter III for all the reliability scores on each set of outlines. These reliability scores were consistent with those found by other researchers (Abdollahzadeh, 2017).

Summary of the Results

Overall, the data showed that there was statistically significant differences in means based on the paired-sample *t* tests for the pre- and postoutline pair, the pre- and research-paper pair on the total outline scores and on the counter-argument and evidence and rebuttals and evidence for both Spring and Fall 2020 classes. All of these paired-sample *t* tests were statistically significant, except for post- and research-paper outlines for Fall 2022 for total, counter-argument, and evidence; pre-and postoutlines; and post-

and research-paper outlines for rebuttal and rebuttal evidence. The results are

summarized in the Table 15 below**.**

Table 15
*Summary of Statistical Significance (Sig.) and Cohen's d for Total Differences Rubric
Scores for Pair 1 (Preoutline and Postoutline), Pair 2 (Research-Paper Outline
and Postoutline), and Pair 3 (Preoutline and Research-Paper Outline)
for the Spring (n=20) and Fall (n=23) Classes*

Class	Pair	Total Sig.	*d*	Claim Sig.	Counterclaim Sig.	*d*	Rebuttal Sig.	*d*
Spring	Pre-post	Yes	0.80	No	Yes	0.65	No	N/A
Fall		Yes	1.08	No	Yes	0.91	Yes	1.00
Spring	Post-res	Yes	0.93	No	Yes	0.58	Yes	0.88
Fall		No	N/A	No	No	N/A	No	N/A
Spring	Pre-res	Yes	1.26	No	Yes	1.10	Yes	0.94
Fall		Yes	1.22	No	Yes	1.47	Yes	0.87

Effect size, as measured by Cohen's *d*, for pairs that were statistically significant

were all large, except for counter-argument and counter-argument evidence for pre- and

postoutlines for the Spring 2020 class, and post- and research-paper outlines for the Fall

2020 class that were both medium.

Limitations of Study

A limitation of the study could be presented by the researchers bias in favor of the

experimental instruction having good results, which was addressed by having a

volunteers help with norming, establishing interrater reliability, and scoring. The small

sample size and short duration of the instruction between collection of pre- and

postoutline data also may be a potential limitation in terms of assessing the true effect of

the instruction on student performance. The study is limited to one population group at

one type of school. Due to the diversity of the population group, however, the results may

still be of use to other researchers with different population groups. Another limitation of

the current study is that the rubric has been used in only one empirical study, but it is

solidly grounded in argument research and is based on the Toulmin (2003) elements that have been used extensively in evaluating arguments in many research studies. Another limitation of the study is that it was conducted in an online environment due to the Covid-19 shut-down. The instruction was planned for face-to-face instruction but had to be quickly adapted to the Zoom environment, so this effect must be considered when analyzing the results.

Discussion of Results

The data analysis addressing each of the four research questions consisted of a paired-sample t tests for pre- and postoutline scores, post- and research-paper outline scores, and for pre- and research-paper outline scores, using the total rubric outline scores (research question 1), combined rubric scores for the claim and data (research question 2), combined counter-argument claim and data (research question 3), and rebuttal claim and data (research question 4). An independent-samples t test was conducted on the means from the preoutline for both classes: Spring and Fall 2020. A statistically significant difference between the preoutline scores of the two classes, Fall 2020 and Spring 2020, was found (see Table 6 in chapter IV), so research questions were analyzed separately for the Spring (n=20) and Fall (n=23) classes. The statistically significant difference in preoutline scores could indicate that student in the Fall 2020 class, familiar with the synchronous Zoom environment from having used it previously, had an advantage in doing the preoutlines compared with the Spring 2020 class that had gone from face-to-face instruction to a synchronous online Zoom environment immediately before the study commenced, which may have contributed to other differences between the classes discussed below.

In order to assess the effect of the experimental instruction on each class, the rubric (ASRAW) scores and section scores on the pre-, post-, and research-paper outlines were obtained, the means and standard deviations reported, and the paired-sample *t* tests were conducted separately for the two classes: Spring 2020 and Fall 2020. For each research question below, mean differences in scores and standard deviations for each pair of outlines --pre- and postoutline, post- and research-paper outline, and pre- and research-paper outline-- were calculated. Then statistical significance and Cohen's d were obtained for each set of data. All results were reported in chapter IV and are referenced here for the discussion.

Research Question 1

1. To what extent is there a difference between total scores on the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

As the results in Table 7 in chapter IV indicate, there was overall increase in means from pre to post in both classes. There was also an increase from pre- to research-paper outlines in both classes. There was an increase in post- to research-paper outlines in the Spring class, but in the Fall class, there was a small decrease. Also, as reported in chapter IV, Table 8, the data show statistical significance for all three pairs in the paired-sample *t* test, except for the Fall 2020 class, postoutline and research-paper outline, which shows that for the Spring 2020 class, students required more time and practice to integrate the experimental instruction, whereas the Fall 2020 students made most of their progress right after the instruction.

This difference between the classes likely is related to the level of experience with

synchronous online learning. Students in the class conducted in the Fall 2020 class would have had much more experience with Zoom and online learning whether or not it was their first semester at the college as most secondary schools at that time were teaching online. Given that the Fall 2020 class had much more experience in synchronous online instruction, students may have been more able to learn from the experimental instruction. Therefore, their scores increased with a very large effect size from pre to post, leaving less room for improvement from post to research paper, and in fact their scores leveled off and had even a slight decrease. The decrease in means may have been the result of students being required to find their own information for the research paper outline (two articles on the controversial issue), adding complexity to the task. In contrast, all the information to construct an argument had been provided to student for the pre- and postoutline argument tasks.

The overall increase in means between the pre- and postoutline scores for both classes is consistent with previous research (Anderson et al., 2001; Felton 2015; Majidi 2021; Nussbaum & Edwards 2012; Nussbaum et al., 2019; Rapanta et al., 2013; Song & Ferretti, 2012) that assessed the effects of using a dialectical approach to teaching argument and found that it was an effective way to increase the quality of student written arguments. Specifically, engaging in a dialectic process around controversial issues resulted in an improved use of counterarguments and to a lesser extent rebuttals, improving the overall strength of the argument. These studies did not use the ASRAW rubric as in the current study but did count and assess the quality of argument elements that are delineated in the ASRAW.

This study further indicates that the method is helpful at the outline stage of

argument development for writing from a set of given facts and when writing from article sources. The differences between the Fall and Spring 2020 classes in terms of where the greatest improvement occurred may reflect the greater complexity of the last task (finding two articles on a topic and using them to construct an argument). The Fall class with the higher level of experience in online learning saw large gains after the experimental instruction, but then when confronted with a more complex task did not continue to improve further. The added complexity of extracting information including claims, counter-argument claims rebuttals, and evidence also has been studied (Bacha, 2010), showing how guidance in this task can enhance student performance. The Spring class showed slower but more consistent gains as their lack of familiarity with the online environment may have resulted in students requiring a longer period to digest the instruction and apply it successfully; hence the small gains in the postoutline but larger gains in the research- paper outline even with the greater complexity of the task.

Research Question 2

2. To what extent is there a difference in the scores from the claim and data-supporting claim sections of the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

For claim and claim-evidence score means, as indicated by results in Table 9 in chapter IV, results show a slight increase in means from pre- to postoutlines for both Fall and Spring and also for Fall for pre- to research-paper outlines, but no increase for Spring for pre- to postoutline means. For Fall and Spring classes there was a slight decrease from post- to research-paper claim and claim evidence total means, which could be

explained by several factors. First, studies (Abdollahzadeh et al., 2017; Rusfandi, 2015; Stapleton & Wu, 2015; Zhang, 2018) showed that claims and claim evidence are the most common argument elements in student argument essays regardless of whether the student is an English Language learner and before being given any specialized instruction in argumentation. Given claims are the part of the argument outline that students are already most familiar with, a large improvement in this area is not to be expected. Second, as they take on the postexperimental instructional task of incorporating more counter arguments and evidence and rebuttal claims and evidence into their arguments, they could even lose some acuity with the task of incorporating claim evidence in to the argument, which could be because the research paper requires students to find their evidence in sources discovered by them through their own online research rather than having the evidence provided for them as it was for the pre- and postoutline assignments.

Even though the small differences in means as noted above, there were no statistical differences between total claim scores from pre- to postoutline, pre- to research-paper outline, and post- to research-paper outline, which is consistent with previous research (Nussbaum et al., 2018; Nussbaum & Schraw, 2007; Rex et al., 2010; Song & Ferretti, 2010). Students generally are able to provide a claim and evidence for a claim even when learning argumentation at a basic level, and, therefore, there was little room to improve on this part of the rubric score.

Research Question 3

3. To what extent is there a difference in the scores from the counter-argument claim and data supporting the counterargument claim sections of the ASRAW

for the preoutlines, postoutlines, and research-paper outlines for students who
have had the experimental instruction based on Toulmin and Walton?

As noted in chapter IV, the data in Table 12 indicate that the change in scores
from pre- to postouline and for pre- to research-paper outline for both Spring and Fall
2020 classes is statistically significant; the change in scores also was statistically
significant for post- to research-paper outline for the Spring but not for the Fall classes,
which correlates with the results for Question One on the totals for the outlines. The
overall improvement in scores is consistent with past research into the dialectic method
of teaching argument (Nussbaum et al., 2018; Nussbaum & Schraw, 2007; Rex et al.,
2010; Song & Ferretti, 2010).The difference in statistical significance between the Fall
and Spring classes has the same possible cause as that of the Fall course whose students
were more experienced in and possibly adept at learning in the Zoom online instructional
environment, that is, a higher increase right after the experimental instruction (from pre-
to postouline) might indicate there was little room for improvement going into the
research-paper outline. The larger positive change in mean differences for the Fall 2020
cohort may be indicative that having experience with the Zoom environment is a key
component to being able to integrate the learning from the experimental instruction. The
class with only one week of Zoom before the instruction showed the biggest gains with
including counterargument and counterargument evidence the research paper outline and
thus likely needed more time to apply the learning in this novel online learning
environment. In contrast, the Fall 2020 cohort with its many weeks experience in the
Zoom environment were able demonstrate the largest gains in inclusion of
counterargument and evidence from the pre- to postoutlines and then a decrease with the

research paper possibly due to the added complexity of finding two articles and using them to provide components for the argument outline. Researchers (Cheong et al., 2021; Cumming et al., 2016) suggested that this task of composing arguments from texts is complex and may require additional training for students to do it competently.

Effect size also mirrors findings from the first research question on total outline scores. Effect sizes were largest from pre- to research-paper outline for both classes, greater than one and then also large, greater than .80, for the Fall class difference in counterargument and evidence difference in scores from pre- to postoutline. Effect sizes were medium for the Fall 2020 class difference in counterargument and evidence scores from post- to research-paper outlines, which also mirrors what was found for total difference in scores for this category. This result demonstrated that students in the Spring class, with less experience in Zoom, increased their scores more slowly after the experimental instruction than the more experienced students in the Fall class. Another difference between the two classes that may be a factor in the differences in the results is that students in the Spring class signed up for a face-to-face class that became a synchronous online class, whereas students in the Fall class knew that the class would be synchronous online. Recent research (Wong, 2021) into student reactions to finding themselves in an online Zoom environment during the Covid shutdown suggests that the more students --50% compared with 19% and the remaining being neutral (p. 88)-- preferred face-to-face group work to the online "breakout-room" version of Zoom. A key component of this study's experimental instruction was the group work in which students used the Vee-diagrams to do the critical questioning dialectical work in constructing an argument, which adds evidence to the possibility that for the Spring class the sudden

transition to synchronous online group work meant they needed more time to understand and apply the dialectic method of constructing arguments and thus did not show that improvement until they did the research-paper outlines.

Research Question Four

4. To what extent is there a difference in the scores from the rebuttal claim and data supporting the rebuttal claim sections of the ASRAW for the preoutlines, postoutlines, and research-paper outlines for students who have had the experimental instruction based on Toulmin and Walton?

As indicated in Table 13, chapter IV, means for rebuttal and rebuttal evidence show an increase from pre- to postoutlines and from pre- to research-paper outlines for both classes. For the post- to research-paper outlines, however, there was an increase for the Spring class, but a slight decrease for the Fall class. According to results shown in Table 14 in chapter IV, both classes have statistically significant results for differences in scores for pre- and research-paper-outline rebuttal and evidence totals. Additionally, the Fall class had statistically significant pre- and postoutline rebuttal and evidence changes in scores, and the Spring class had statistically significant post- to research-paper-outline changes in rebuttal and evidence means. Effect sizes are large, greater than .80, for both Spring and Fall pre- to research-paper-outline rebuttal and evidence differences in means. The effect size also was large for post- to research-paper-outline score differences for rebuttal and evidence claims for the Spring class.

The progress students made is mirrored with counterarguments and is expected as the presence of rebuttals depends on there being a counterargument to rebut that again may be a likely factor of familiarity with the Zoom environment as the main cause of the

differences between the classes, with the most gains for the Spring 2020 class happening over the entire period form pre- to research-paper outline and with the most gains coming directly after the instruction for the Fall 2020 class and falling off with the more complex task of the research- paper outline. As new research (Wong, 2021) showed, students preferred face-to-face teaching for group work and in this study a large part of the dialectical method employed was done in the synchronous online groups, which may have made the instruction less accessible to some students, particularly those who were least familiar with it (students in the Spring 2020 class.)

The overall improvement in rebuttals postinstruction reflect past research (Nussbaum et al., 2018; Nussbaum & Schraw, 2007; Rex et al., 2010; Song & Ferretti, 2010). These studies also suggested that rebuttals are the most difficult element of the argument for students in terms of providing rebuttals and evidence for rebuttals that address the counterargument claim and evidence. The ASRAW rubric allows for a greater level of accuracy in assessing rebuttals as points are given based on the extent to which the rebuttal addresses the counterargument rather than simply awarding points for the rebuttal being present. This greater difficulty with rebuttals (as compared with claims and counterargument claims) noted in many studies (Abdollahzadeh et al., 2017; Majidi et al., 2021; Nussbaum et al., 2019; Quin & Karabak, 2015; Rusfansi, 2015; Stapleton & Wu, 2015; Villarroel et al., 2016; Zhang, 2018) also explains why the means were not as high as they were for other argument components.

Rebuttals and rebuttal evidence saw the least improvement (not including the claims that were competent even in the preoutlines) and thus may be considered the most difficult aspect of argument outline construction was the rebuttals and rebuttal evidence,

which mirrors what was found in the study using the ASRAW rubric (Abdollahzadeh et al., 2017). Another study (Tang et al., 2016) that explicitly taught rebuttals through training students to identify "embedded" rebuttals in texts and then incorporate them into their own writing is essential for students to thoroughly develop their skills in use of rebuttals in argumentation. Therefore, a greater emphasis of developing this skill could be included in the session. One possible pedagogical strategy to employ would be to repeat a modified version of the dialogical pair work, employed as part of the study's experimental instruction, with the students' research-paper outlines. Students would pair up and use the critical questioning Vee diagrams to strengthen their outlines. How this would work in practice is that students would exchange outlines and then ask critical questions relating to claims, counterargument claims, and rebuttals that would elicit more evidence being included in the outlines, especially for counterarguments and rebuttals.

Implications for Research

One obvious implication is the need to repeat this study in the face-to-face environment as the study originally was planned. A comparison between in person and online cohorts would also reveal if this methodology worked as efficaciously in the synchronous online environment as it is in the traditional classroom environment or if further adaptions need to be made. Given the results from a recent study (Wong, 2021) that suggested students strongly prefer group work to be face-to face, it is possible that an inperson version of this study would show even stronger results and more consistent results, for example more consistent increases in means from pre- to postoutlines and from post- to research-paper outlines. Although most institutions are returning to in-person classes as the norm (where it had been the norm before the shut-down), there is

still a need for online instruction. Because this pedagogy worked well in the synchronous online environment that replicated the interactivity of the face-to-face environment, adapting this methodology of incorporating a dialectical process in the instruction of argumentation would be difficult in a nonsynchronous online environment, but it would still be very useful to design such a study as there are many first-year English courses taught in that modality (asynchronous online).

The Fall 2020 class was better adapted to the synchronous online environment than the Spring 2020 class, but, as a result, students' high level of improvement after the instruction on the postoutline there was little room to improve again on the research-paper outline; therefore, a study that focuses on transfer knowledge and applying the concepts learned via the dialectical method to a research-paper outline would be needed. Further instruction for this phase (finding sources for a research topic and constructing an argument outline by selecting material from these sources) could be designed and incorporated into a study and evaluated using the same ASRAW rubric that was used in the current study. Given that counter-argumentation improved more than rebuttal argumentation in this study, more attention should be paid to this part of the process, and pedagogy could be designed and tested to investigate whether the performance in this most difficult aspect of constructing an argument could be further improved. Also, the study could be repeated with a larger cohort and at other types of institutions.

One additional area for research that could be attempted is considering the language status of students, much of the research in argumentation has been accomplished with students whose first language is not English (Abdollahzada et al., 2017; Cheong et al., 2021; Majidi et al., 2021; Quin & Karabak, 2010); some studies

compare argumentation skills in their native language to English and found that although students were more adept in their native language, in both cases the least competent area was the inclusion of counterarguments and rebuttals. It would be of interested to find out if a dialectic approach works as well for native speakers of English and for students who learned English as a second language. Also, this study focused on outlines; it would be important to investigate to what extent a strong argument in an outline correlates with a strong argument in the final paper.

Implications for Pedagogy

The results of this study have been confirmed by other studies (Nussbaum et al., 2019; Nussbaum & Schraw, 2007; Rex et al., 2010; Song & Ferretti, 2010), that is, demonstrating the effectiveness of using a dialectical method to increase the use of the more complex elements (counterargument, counterargument-evidence, rebuttal, and rebuttal-evidence) of a Toulmin-based argumentative structure. This study also showed that it is possible to carry out the experimental instruction consisting of lecture, discussion, pair and group work in a synchronous online learning environment although that was not the original intention of the researcher. The Spring class having had greater difficulty with applying the experimental instruction to their argumentation outlines, indicates that familiarity with the Zoom environment and efficacy with use of the break-out rooms and Google docs for the dialectical activity (engaging in the dialectical critical questioning process in pairs and in groups to create argument outlines on the Green New Deal topic) is essential for students to learn from the experimental instruction and apply it to subsequent argument tasks.

Another indication from this study is related to the flattening out of the progress

made by the Fall 2020 class when faced with the greater complexity of creating an outline on the Gun Control topic. For the Spring 2020 cohort, the added time created their increase in scores for the postoutline, but because the Fall 2020 cohort already had experienced a large increase directly after the instruction with the postoutline scores, the need to find their own sources (from which to draw their claims, counter-argument claims, rebuttals, and evidence) slowed their progress in achieving higher argumentation scores. Many studies have indicated the difficulties with the tasks of the research phase (gathering sources on the argument topic; Diekema et al., 2011; Hillocks, 2010; Leibiger, 2010; Lupton, 2008; Macmillan & MacKenzie, 2012; Reese, 2007) and of the composing phase (building an argument by reading and selecting materials from sources either discovered through the research process or provided by the instructor; Cheong et al., 2021; Cummings et al., 2016; Mateos et al., 2018; Quin &Liu, 2021), therefore, a pedagogical strategy to address the need for greater improvement from post- to research-paper outline would be to include another session focused on developing skills in discovery and selection of sources and extraction of argumentation elements from them. This study did include use of reading materials as sources for argument construction and then asked students to find articles for their own gun-control topics, but it is possible more practice in finding and selecting and reading sources would be useful in creating the argument outlines.

Another factor to consider relating to pedagogy is the topic selection process that involved surveying students and using the most popular topic, gun control for the research paper topic. Students in this study were ethnically, linguistically and culturally diverse, including some international students and students who were first-generation

immigrants, having learned English as a second or third language. The topic of gun control, although popular with students as illustrated by being the highest scoring topic in the student survey, may be one that many such students do not have much background information on and, therefore, could be at a disadvantage when attempting to research and build an argument relating to gun control. Even international students coming from countries with very strict gun- control laws, however, would be able to draw on that experience when exploring the gun-control topic here in the United States. The Vee diagram approach that encourages integration of counter-arguments also is culturally responsive as many international students may be more familiar with argumentation that seeks integration over persuasion.

All of the topics, including the gun-control topic in the course are approached using a broadly political and social justice lens, so students explore gun culture from a variety of perspectives including that of police violence, reading Ta-Nehisi Coates' book, *Between the World and Me,* that addresses this topic form a personal narrative and historical perspective that makes the problem of gun violence more relatable to all students. Additionally, other materials including interviews of student gun-control activists, many of whom have experienced gun violence in their neighborhoods and schools, are also included in the gun-control unit with an aim to again make the topic relatable to students from a wide range of backgrounds. In conclusion, an implication for teaching from the study and also a best practice for culturally responsive pedagogy is to approach "controversial issue" topics typically used in college argument and writing courses in a way that will resonate best with the diverse students in the class.

Recommendations

A strong recommendation from this study is the importance of making sure both the instructor and students have good grasp of the learning environment being used in this case, a synchronous online environment. The effect of not being experienced showed up in the statistically significant differences between the two classes. It is worthwhile to make sure that a competency level and comfort is achieved before attempting new learning on argumentation.

Another aspect of this study involved ensuring that the topics used for the various assignments and phases of instruction were topics of interest to students. These topics were chosen based on the results of a survey given to previous students. The highest level of interest based on the survey (see Table 4 in chapter III) was gun control. Students were given supplemental material on gun control and were assigned the book *Between the World and Me* by Ta-Nehisi Coates to incorporate a social justice perspective on the topic. Although this topic may have scored the highest when students were surveyed, it was not necessarily of great interest to all students or as mentioned above may not be a topic that some students had much background knowledge of. Given the importance of having a topic of interest to bring out a students' best performance, another option would be to allow students to choose any social issue topic for their papers. The downside would be that the class could not share in the reading of an entire longer text on the topic. If a common topic is used it is important to repeat the survey of what topics students are most interested in on a yearly basis as their preferences may change from year to year.

Another recommendation already mentioned is to provide more support for the process of finding and selecting articles to use when writing the research-paper outlines,

to ensure the articles do have sufficient alternative perspectives and evidence in them to be adequate sources for the outlines, and to include dialectical pair work and a peer-revision process for the outlines before they are turned in, so that students can ask critical questions about the claims in the outline to make sure counter-arguments and adequate rebuttals are included.

References

Abdollahzadeh, E., Farsani, M.A., & Beikmohammadi, M. (2017). Argumentative writing behavior of graduate EFL learners, *Argumentation*, *31, 641-661.*

Alfino, M., Pajer, M., Pierce, L., & Jenks, K.O. (2008). Advancing critical thinking and information literacy skills in first year college students. *College & Undergraduate Libraries*, *15 (*1-2), 81-97.

American Association of Colleges and Universities. (2013). *Information literacy value rubric*. retrieved from https://www.aacu.org/value/rubrics/information-literacy

American Psychological Association. (2010). *Publication Manual of the American Psychological Association Sixth Edition.* Washington, DC: American Psychological Association

Anderson, A., Soden, R., & Hunter, S.C. (2001) Evidence evaluation and use in undergraduates' everyday reasoning. *Scottish Educational Review*, *33*(1) 59-71. .

Anthony, R., & Kim, M. (2015). Challenges and remedies for identifying and classifying argumentation schemes. *Argumentation, 8*(11), 81-113.

Armstrong, J. (2010). Designing a writing intensive course with information literacy and critical thinking learning outcomes. *Reference Services Review, 38*, 445-457. http://doi: 00.1108/00907321011070928.

Asterhan, C., Schwartz, B. (2016). Argumentation for learning: Well-trodden paths and unexplored territories, *Educational Psychologist, 51*, 164-187.

Association of College Research Librarians. (2000). *Information literacy competency standards for higher education.* Retrieved from http://www.ala.org/acrl/standards/informationliteracycompetency#ildef.

Association of College Research Librarians. (2014). *Framework for information literacy for higher education. Parts 1 & 2*. Retrieved from http://acrl.ala.org/ilstandards/?page_id=133.

Bacha, N. N. (2010). Teaching the Academic Argument in the EFL Environment. *Journal of English for Academic Purposes*, 9, 229-241.

Bey, F., & Walton, D. (2018). Taking the dialectical stance in reason in with evidence and proof. *International Journal of Evidence and Proof, 23*(1–2), 90–99.

Bartholomae, D. (1986). Inventing the university. *Journal of Basic Writing*, *5*(1), 4-23.

Birdswell, D. S., & Groarke, L. (2007). Outlines a theory of visual argument.

Argumentation & advocacy, *43*(3-4), 103-123.

Blair, J.A. (2012*). Groundwork in the theory of argumentation*. Windsor, Ontario, Canada: Springer.

Cheong, C. Zhu, X, & Xu, W. (2021) Source-based argumentation as a form of sustainable academic skill: an exploration study of secondary school students L1 and L2 writing. *Sustainability*. 13: 12869.

Chin, X. (2016) *Remedial course taking at 4- and 2- year institutions*: Scope, experiences, and outcomes. (NCES-2016-405). U.S. Department of Education, Washington D.C. National Center for Data Statistics

Condon, W. (2009). Looking beyond judging and ranking: Writing assessment as a generative practice. *Assessing Writing*, *14*,141-156.

Cumming, A., Lai, C, & Cho, H. (2016). Students' writing from sources for academic purposes: A synthesis of current research. *Journal of English for Academic Purposes, 23,* 47-58.

Deitering, A., & Jameson, S. (2008). Step by step through the scholarly conversation: A collaborative library/writing faculty project to embed information literacy and promote critical thinking in first year composition at Oregon State University. *College & Undergraduate Libraries, 15*(1-2), 57-59. http://doi: 10.1080/10691310802176830.

Diekema, A., Holliday, W., & Leary, H. (2011). Reframing information literacy: Problem-based learning as informed learning. *Library and Information Science Research*, *33*(1), 261-268. http://doi 10.1016/j.listr.2011.02.002.

Dove, I.J. (2012) On Images as Evidence and Arguments. In: van Eemeren F., Garssen B. (eds) *Topical Themes in Argumentation Theory*. Argumentation Library, vol 22. Springer, Dordrecht.

Duggan, M. (2013). Photo and video sharing grow online: Additional analysis. *Pew Research center*. Retrieved from http://www.pewinternet.org/2013/10/28/additional-analysis/.

Dunaway, M.K., & Orblych, M. T. (2010). Formative assessment: Transforming information literacy instruction. *Reference Services Quarterly*, *39*(1), 24-41.

van Emeren, F., and Grootendorst, R. (2004). *A systematic theory of argumentation: The Pragma-dialectic approach.* Cambridge MA: Cambridge University Press.

van Eemeren, F., Grootendorst, R., & Henkemans, E. (1996). *Fundamentals of argument theory: A handbook of historical backgrounds and contemporary developments.*

Mahwah, NJ: Lawrence Erblaum Associates.

Felton, M., Crowell, A. & Liu, T. (2015). Arguing to agree: Mitigating my-side bias through consensus-seeking dialogue. *Written Communication, 32*(3), 317–331

Fleming, D. (1996). Can pictures be arguments? *Argumentation & Advocacy, 33*(1), 11-18.

Fluk, L. R. (2015). Foregrounding the research log in information literacy. *Journal of Academic Librarianship*, *41*, 488-498.

Fulkerson, R. (1996). *Teaching the argument in writing*. Urbana, IL: National Council of Teachers of Writing.

Graff, G. (2003). *Clueless in the Academe: How schooling obscures the life of the mind*. New Haven, CT: Yale University Press.

Graff, G., & Birkenstein, C. (2004). "*They Say/I Say": The moves that matter in academic writing*. New York; NY: Norton and Company.

Harris, B. (2006). Visual information literacy via visual means: Three heuristics. *Reference Services Review, 34*, 213-221.

Hattwig, D., Bussert, K., Medaille, A., & Burgesss, J. (2013). Visual literacy standards in higher education: New opportunities for libraries and student learning. *Portal: Libraries and the Academy, 13*(1), 61-89.

Hemberger, L., Kuhn, D., Matos, F., & Shi, Y. (2017). A dialogic path to evidence-based argumentative writing. *Journal of Learning Sciences, 26*, 575-607.

Hern, K., Snell, M. & Henson. L (2020). Still getting there: How California's AB 705 is (and is not) transforming remediation and what needs to come next. Sacramento, CA: Public Advocates.

Hillocks, G., Jr., (2010). Teaching argument for critical thinking and writing: An introduction. *English Journal*, *9*(6), 24-32.

Hobbs, R. (2004). Does media literacy work? An empirical study of learning how to analyze advertisements. *Advertising & Society Review*, *5*(1), 1-28.

Holliday, R., & Rogers, J. (2013). Talking about information literacy: the mediating role of discourse in a college writing classroom. *Libraries and the Academy*, *1*, 257-271.

Hufford, J.R. (2013). A review of the literature on assessment in academic and research libraries, 2005 to August 2011. *Portal: Libraries and the Academy*, *13*(1), 5-35.

Jacobs, H., & Jacobs, D. (2009). Transforming the one-shot library session into pedagogical collaboration: Information literacy and the English composition class. *Reference & User Services Quarterly, 49*(1), 72-82.

Jeffrey, J.V. (2009). Constructs of writing proficiency in US state and national writing assessments: Exploring variability. *Assessing Writing, 14*(1), 3-24.

Kitchenham, A. (2008). The evolution of John Mezirow's transformative learning theory. *Journal of Transformative Education*, *6*, 104-115.

Kobzina, N. (2010). A faculty-librarian partnership: A unique opportunity for course integration. *Journal of Library Administration, 50*, 293-314.

Kuh, G. D. (2008). *High-impact educational practices.* Washington DC: Association of American Colleges and Universities.

Kuh, G. D., & Gonyea, R. M. (2003). The role of the academic library in promoting student engagement in learning. *ACRL Eleventh National Conference.* Charlotte, NC.

Kuh, G.D., Cruce T.M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-Year college grades and persistence. *The Journal of Higher Education*, *79*, 540-563.

Kuhn, D. (2010). Teaching and learning science as argument. *Science Education*, *94,* 811-824.

Kuhn, D. (2018). A role for reasoning in dialogic approach to critical thinking. *Topoi*, *37*, 121-128.

Kuhn, D. Hemberger, L., & Khait, V. (2016). Tracing the development of argumentative writing in a discourse-rich context. *Written Communication. 33*, 92-121.

Kuhn, D., Zillmer, N., Crowell, A., & Zavala, J. Developing norms of argumentation: Metacognitive, epistemological, and social dimensions of developing argumentative competence. *Cognition and Instruction. 31*, 456-496.

Laird, T.F.N., Shoup, R. D., Kuh, G.D., & Schwarz, M.J. (2008). The effects of discipline on deep approaches to student learning and college outcomes, *Research in Higher Education*, *49*, 469–494. http://doi 10.1007/s11162-008-9088-5.

Leibiger, C. A. (2011). "Google Reigns Triumphant?": Stemming the tide of Googlitis via collaborative, situated information literacy instruction. *Behavioral and Social Sciences Librarian*, *40*, 187-222.

Lenker, M. (2017). Developmentalism: Learning as the basis for evaluating information.

Portal: Libraries and the Academy, *17*, 721-73. Retrieved from *Project MUSE*.

Lupton, M. (2008). Evidence, argument and social responsibility: First-year students' experiences of information literacy when researching an essay. *Higher Education Research & Development*, *27,* 399-414.

Macagno, F., Mayweg-Paus, E., Kuhn, D. (2015). Argumentation theory in education studies: Coding and improving students' argumentative strategies, *Topoi. 34*, 523-537.

Mackey, J. & Jacobson, T. (2011). Reframing information literacy as a metaliteracy. *College & Research Libraries*, *7*(1), 62-78.

Majidi, A., Janssenm D., & de Graff, R. (2021). The effects of in-class debates on argumentation skills in second language education*. System.*

Mateos, M. Martín, E., Cuevas, I., Villalón, R., Martínez, I., & Jara González-Lamas, J. (2018) Improving Written Argumentative Synthesis by Teaching the Integration of Conflicting Information from Multiple Sources, *Cognition and Instruction*. 36:2,119-138.

Mayer, R.E., & Massa, L. (2003). Three facets of visual and verbal learners: Cognitive ability, cognitive style, and learning preference. *Journal of Educational Psychology, 95*, 833-846.

Meyer, J., & Land, R. (2003). *Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practicing within the disciplines.* Edinburgh, UK: University of Edinburgh.

Moreno, R.E. & Mayer, R. E. (1999). Cognitive principles of multimedia learning: The role of modality and contiguity. *Journal of Educational Psychology*, *91*, 358-368.

Oakleaf, M. (2010). *The value of academic libraries: A comprehensive research review and report. America*, Association of College Research Librarians

National Center for Public Policy and Higher Education. (2010). *Beyond the rhetoric: Improving college readiness through coherent state policy,* Retrieved from http://www.highereducation.org/reports/college_readiness/gap.shtml.

National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Common Core State Standards*. Washington DC: National Governors Association Center for Best Practices, Council of Chief State School Officers.

Nelms, G., & Dively, R. L. (2007). Perceived roadblocks to transferring knowledge from first-year composition to writing-intensive major courses: A pilot study. *WPA:*

Writing Program Administration, 31, 214-240.

Newell, G. E., Beach, R., Smith, J., VanDerHeide, J., Kuhn, D., & Andriessen, J. (2011). Teaching and learning argumentative reading and writing: A review of research. *Reading Research Quarterly*, *46*, 273–304.

Nussbaum, E. M. (2011). Argumentation, dialogue theory, and probability modeling: Alternative frameworks for argumentation research in education. *Educational Psychologist*, *46*(2), 84-106. doi: 10.1080/00461520.2011.558816.

Nussbaum, E. M., Dove, I.J., Slife, N., Kardash, C. M., Turgut, R. Vallet, D. (2018). Using critical questions to evaluate written and oral arguments in an undergraduate general education seminar: a quasi-experimental study. *Reading and Writing,* 32, 1531-1552.

Nussbaum, E. M., & Edwards, O. V. (2011). Critical questions and argument stratagems: A framework for enhancing and analyzing students' reasoning practices. *Journal of Learning Sciences*, *20*, 443-488.

Nussbaum, E. M, & Schraw, G. (2007). Promoting argument-counterargument integration in students' writing. *The Journal of Experimental Education*, *76*, 59-92.

Nussbaum, E. M., Windsor, D. L., Aqui, Y. M, & Poliquin, A. M. (2007). Putting the pieces together: Online argumentation vee diagrams enhance thinking during discussions. *Computer-Supported Collaborative Learning*, (2) 479-500.

Owusu-Ansah, E.K. (2004). Information literacy and higher education: Placing the academic library in the center of a comprehensive solution. *The Journal of Academic Librarianship, 30*, 3-16.

Pack, J.K., Kang, Y. (2017). Investigation of content features that determine Korean EFL learners argumentative writing qualities. *English Teaching, 72*, 705-710.

Partridge, H. Edwards, S., Baker, E., McAllister, L. (2008). The reflective online searching skills (ROSS) Environment: embedding information literacy into student learning through and online environment. *IFLA Journal*, *34*(55), 55-70.

Park, S., & Lim, J. (2004). The effect of graphical representation on the learner's interest and achievement in multimedia learning, *Association for Educational Communications and Technology,* 27, 688-695.

Park, S., & Lim, J. (2007). Promoting positive emotion in multimedia learning using images*, Journal of Educational Multimedia and Hypermedia, 16,* 142-158.

Patterson, F. J. (2011). Visualizing the critical thinking process. *Issues*, *95*, 36-41.

Phan, T., Hardesty, L., & Hug, J. (2014). *Academic libraries: 2012* (NCES 2014-038). U.S. Department of Education, Washington, DC: National Center for Education Statistics. Retrieved [date] from http://nces.ed.gov/pubsearch.

Prince, M. B. (2007). A new beginning in college writing. *Journal of Education*, *188*(3), 1-2.

Quin, J., & Liu, Y. (2021). The influence of reading texts on L2 reading-to-write argumentative writing. Frontiers in Psychology. 12.

Qin, J., & Karabacak, E. (2010). The analysis of Toulmin elements in Chinese EFL university. *Systems, 38*, 444-456.

Radcliff, S. (2014). Teaching information literacy using argument, alternative perspectives, and images. in *Information Literacy: Lifelong Learning and Digital Citizenship in the 21st Century*, edited by Serap Kurbanoglu, Springer International Publishing, Switzerland, 474-483.

Rapanta, C., Garcia-Mila, M., & Gilabert, S. (2013). What is meant by argumentative competence? An integrative review of methods of analysis and assessment in education. *Review of Educational Research, 83*, 483-520.

Ravas, T. & Stark, M. (2012, Spring) Pulitzer-prize-winning photographs and visual literacy at the University of Montana: A case study. *Journal of Art Libraries Society of North America, 31*, 34-44.

Ravenstock, A., & McAlister, S. (2008). Investigating and promoting educational argumentation: Towards new digital practices. *International Journal of Research & Method in Education*, *31*(3), 317-335.

Reese, G. (2007). Critical thinking and cognitive transfer: Implications for the development of online information literacy tutorials, *Research Strategies, 20,* 482-493.

Rex, A.R., Thomas, E.E., & Engel, S. (2010). Applying Toulmin: Teaching logical reasoning and argumentative writing, *English Journal*, *99*(6), 56-62.

Rotgans, J. I., & Schmidt, H.G. (2011) Situational interest and academic achievement. *Learning and Instruction, 21*, 58-67.

Rusfandi (2015). Argument-counterargument structure in Indonesian EFL learners' English argumentative essays: A dialogic concept of writing. RELC Journal, 46 (2) 181-197.

Schwarz, B., Neuman, Y., Gil, J., & Ilya, M. (2003). Construction of collective and individual knowledge in argumentative activity. *The Journal of the Learning*

*Sciences,*12, 219-156.

Song, Y., & Ferretti, R. (2012). Teaching critical questions about argumentation through the revising process: effects of strategy instruction on college students' argumentative essays. *Reading and Writing Quarterly, 26*, 67-90.

Soria, K.M., Fransen, J., & Nackerud, S. (2013). Library use and undergraduate student outcomes: New evidence for students' retention and academic success. *Portal: Libraries and the Academy*, *13*, 147–164.

Stanovich, E., West, R.F., Toplak, M.E. (2013). Myside bias, rational thinking, and intelligence. *Current Directions in Psychological Science, 22*, 259- 276. doi: 10.1177/09637214134801

Stapleton, P., & Wu, Y. (2015). Assessing the quality of argument in students' persuasive writing: A case study analyzing the relationship between surface structure and substance. *Journal of English for Academic Purposes*, *17*, 12-23.

Tang, J. K. K., Mok, J.C.H., Sawatdeenarunat, S. Investigating the effect of teaching embedded rebuttals on students' argumentative essays: A preliminary study. NUS CELC 5th Symposium Proceedings, 106-115.

Toulmin, S.E. (2003). *The uses of argument* (Updated ed*.*). Cambridge, UK: Press Syndicate of the University of Cambridge (Originally published in 1958).

Townsend, L., Hoffer, A., & Brunetti, K. (2011). Troublesome concepts and information literacy: Investigating threshold concepts for IL. *Portal: Libraries and the Academy, 11*, 853-869.

Villarroel, C., Felton M., & Garcia-Mila, M. (2016). Arguing against confirmation bias: The effect of argumentative discourse goals on the use of disconfirming evidence in written argument. *International Journal of Educational Research*, *79,* 167-178.

Vygotsky, L. (1986). *Thought and Language (*Revised ed*.)*, Revised and Edited by A. Kozulin. Cambridge, MA: MIT Press.

Walton, D. (2008). *Informal logic: A pragmatic approach*. Cambridge, MA: Cambridge University Press.

Walton, D. (2012). *Methods of argumentation*. New York, NY: Cambridge University Press.

Wardle, E. (2007). Understanding "transfer" from FYC: Preliminary results of a longitudinal study, *WPA: Writing Program Administration*, *31*(1-2), 66-85.

Wolfe, C. (2012). Individual differences in the "myside bias" in reasoning and written argumentation. *Written Communication, 29*, 477-501. doi: 10.1177/0741088312457909.

Wolfe, C., Britt, M.A., & Butler, J. A. (2008). Argumentation schema and the myside bias in written argument. *Written Communication*, *26,*183-209.

Wong, J. O. (2020). A pandemic in 2020, Zoom and the arrival of the online educator. *International Journal of TESOL Studies, 2* (3)82-99.

Zhang, Y. (2018). An investigation into the development of structure and evidence use in argumentative writing. *Theory and Practice of Language Studies, 8*(11) 1441-1448.

APPENDICES

Appendix A

Dean's Letter

November 20, 2019

Dear Dean Lieu,

I am formally requesting as a doctoral candidate at the University of San Francisco for consent to conduct research in my own section of English 101AX in the Spring of 2020. In week 9 of the class, I will distribute a pretest on creating an argument outline for a controversial topic that is a normal part of the course. Then I will conduct the experimental dialectic-based instruction on argumentation in week 10. I will administer a posttest on argument outlining in week 11 assign an outline due week 12 for a controversial issue research paper. All of these outlines and instruction are part of the normal coursework, but students may opt out via a letter of consent should they not want their data included in the study. Their participation will be voluntary, and their information will be anonymous and kept in a secure location. I will obtain Institutional Research Board Consent from University of San Francisco for this project. I hope you will give your consent to conduct this research project.

Thank you, in advance, for your time and consideration.

Sincerely,

Sharon Radcliff
Doctoral Candidate
School of Education
University of San Francisco
sradcliff@ohlone.edu
              510-9071926

Consent for Research

My signature below indicates that I acknowledge and authorize Sharon Radcliff to conduct a research project in her English 101AX class in Spring Semester 2020 . I am aware that the research involves administering a pretest and posttest outline to students and collecting a research paper outline. I understand these assignments are part of the regular course work, but that students will have the option to opt out of having their data included in the study via a consent letter.

MARK WADE LIEU   DEAN

Name   Title/Position

11·20·19

Signature   Date

Appendix B

Training Handout for Raters

Training Handout for Raters

Goals: For session one (3 hours)

1. Learn to identify argument elements: argument claim; reasons for argument claim; counterargument claim; reasons for counterargument claim; rebuttal claim; evidence for rebuttal claim.
2. Learn to score argument outlines using the ASRAW Rubric using sample outlines on various topics provided by the researcher

Goals for session two:

1. Establish reliability for ASRAW scoring   (4 hours)

Instructions:

You will be given 5 randomly selected outlines from the 3 groups of outlines

collected during the study (preoutlines, postoutlines, and researcher paper outlines).

Reliability of the ASRAW Rubric will be established by comparing researcher scores

to rater scores on these sets of outlines. Any discrepancies will be discussed and

resolved.

<u>Session One</u>

Definitions (from Quin & Karaback, 2010)

Argument claim: An assertion in response to a contentious topic or problem.

Reasons (data) for claim: Evidence used to support a claim.

Data: Data may taking a variety of forms including, "facts, statistics, anecdotes,

research studies, expert opinions, definitions, analogies, and logical

explanation

Counterargument claim: Counterargument claim: The possible opposing views

that challenge the validity of a claim,

Reasons (data) for counterargument claim: Evidence to support a

counterargument claim

Rebuttal claim: Statements in which the writer responds a counterargument by

pointing out possible weakness, including: "logical fallacies,

insufficient support, invalid assumptions, and immoral values."

Reasons (data) for Rebuttal claim: Evidence to support a rebuttal claim

Suggestions for identifying elements:

Claims maybe identified through words used such as, " in my opinion", "I believe," and

"I think."

Data (reasons) may be identified through expressions including, " for that reason," and

"because."

Counterarguments through expressions such as, "some people claim that," however," and

even though."

Exercise One:

Please use the definitions and suggestions above to identify the various argument

elements in the following sample argument outline:

We need stricter gun control laws.

Other countries with strict gun control laws have fewer deaths from

firearms.

For example, the United States had over 12 deaths per 100, 000 people

while Japan   had .06.

The United States has many mass shooting events every year.

The Second Amendment guarantees individuals right to own guns.

It says in part: "the right of the people to keep and bear arms shall not be infringed."

The Second amendment was written over 200 years ago when guns were

made and functioned very differently from today.

For example, semiautomatic and automatic weapons did not exist when the

second amendment was written.

Exercise Two:

(a more complex and disordered example provided)

Exercise Three:

Now that you are able to distinguish the elements of argument within an outline, please use the ASRAW rubric provided to score the outline provided below.

Please note that the presence of an argument claim is scored as either a "0" or a "5," while presence of at least one counterargument claim, and rebuttal claim are each scored as either a "0" or a "10."

(A variety of poor, acceptable, and good outlines from students in past

classes are provided.)

<u>Session Two</u>

Handout for Session Two

You as a rater, have been provided with three sets of five outlines, one from the preoutline assignment, one from the postoutline assignment and one from the research paper homework assignment.

Please use the ASRAW rubric to score these outlines.

Note: The scores will be compared and any discrepancies discussed and resolved.

Appendix C

Letter of Consent

Letter of Consent

Date

Dear English 101AX student,

I am currently a doctoral candidate in the School of Education at the University of San Francisco. As part of my degree requirements, I will be conducting a study on the effect of instruction in argument on creating sound argument outlines.

Although all students are required to do the above work, participation in this study, which consists of allowing the instructor/researcher to use the pre and post outline, and the homework outline as anonymous data in the study is entirely voluntary. The participants' identities will be kept anonymous, and the results will remain confidential and in a secure location. The consent letters will be kept in a secure envelop in a secure location until after grades have posted. All identifying information from your work will be removed before any analysis is done. Whether you consent or not to the study will not be known to the instructor or affect your grade in any way.

Your signature on the enclosed consent letter indicates that you acknowledge and authorize your pre-postoutlines, and research paper outlines to be included anonymously in the study.

Sincerely,

Sharon Radcliff
Doctoral Candidate
School of Education
University of San Francisco
Contact e-mail
Contact phone number

Consent for Research

My signature below indicates that I acknowledge and authorize Sharon Radcliff to use my pre- and postoutlines and research paper outlines in her study of an instructional method for teaching argument.

_____
Name

_____
Signature   Date

Appendix D

Lesson Plan on Argument

Lesson Plan on Argument

Background: This lesson will be implemented during the 9th, 10th, 11th, and 12th weeks of a developmental level accelerated reading and writing course at a community college. This course is required for students who are not advanced enough to go directly into firstyear English Composition. By this time, students will have completed three short essays on various topics and will students have chosen a topic and will be developing topics for a controversial issue argument research paper. In this lesson students learn about analyzing, criticizing, and constructing arguments while avoiding "myside bias." Myside bias occurs when opposing views and evidence are ignored, weakening the proposed argument.

Learning Outcomes:

- Students will be able to construct argument on a current controversial issue topic that includes evidence from opposing viewpoints, overcoming their own biases.

- Students will be able to construct and identify arguments with all key elements: Claim, Claim Data (evidence), Counterargument Claim, Counterargument Data, Rebuttal, Rebuttal Data.

- Students will be able to use critical questioning to evaluate and modify arguments and components of argument.

Total time: Class time used is the 9th week, end of the second-class session, (30 minutes) The majority of class time of first and second classes of the 11th week, (2.5 hours). Part of the first class in the 11th week for the postoutline (30 minutes). Then research paper outline done for homework will be turned in on the second class of the 12th week.

Other homework includes reading background material on a controversial issue (gun control), doing research sufficient to find two additional articles; then creating an argument outline on the controversial issue provided.

Timeline and activities:

Week Nine class session 2 : Preoutline at end of class: 30 minutes.

Students complete the preoutline assignment to create an argument outline of a controversial issue topic (e-cigarettes/vaping) using facts provided from both sides of the argument.

Homework: Students read articles on Green New Deal used in pair work. (30 minutes outside of class.)

Week Ten first class: 2.5 hours of 3 hour class

Interactive lecture on argument: 40 minutes

Pair Work Worksheet: 60 minutes

Students review the two short articles read for homework; each student is assigned one side of the argument to support. Each create outlines of their argument; then use the Vee diagram to critique and question each other's claims and data or evidence included in their outlines. Students collaboratively come up with a solution after discussing both sides of the argument.

Poster sessions: 40 minutes

Student pairs collaborate on creating one argument outline on a poster. Students look at each other's arguments and decide which poster has the best argument. The entire class discusses why this one is best.

Week Eleven: First Class Session

Post-outline assignment: 20 minutes

Students complete the postoutline assignment using facts provided on both sides of a controversial issue.

Research paper topic introduced in class via a short NPR film; background readings assigned.

Second class: gun control topic discussed in class, using the Vee diagram approach. Argument research paper on gun control topic assigned

Week Twelve:

Research paper outline on controversial issue homework due week 12, second class session. Students are asked to find two articles on their topic that together include opposing viewpoints on that topic and construct a Vee diagram and then an argument outline using those articles and any background articles already provided by the instructor. Estimated time: 2-3 hours.

Wrap up : 10 minutes

Appendix E

Preoutline Assignment

Pretoutline: (30 minutes)

Measures students' ability to construct a sound argument.

For this test, the health effects of e-cigarettes (vaping) will be used as a sample argument topic.

According to the Food and Drug Administration (FDA) the E-cigarettes (used for vaping) are "products use liquid containing nicotine, as well as varying compositions of flavorings ,propylene glycol, glycerin, and other ingredients. The liquid is heated into an aerosol that the user inhales."

Create an outline of an argument that supports one of the claims below using the facts provided and any other statements or facts related to the topic from your own knowledge.

Here are a number of facts, and statements about e-cigarettes

- More than 3 million middle and high school students were current users of e-cigarettes in 2015, up from an estimated 2.46 million in 2014
- Sixteen percent of high school and 5.3 % of middle school students were current users of e-cigarettes in 2015, making e-cigarettes the most commonly used tobacco product among youth for the second consecutive year
- During 2011-2015, e-cigarette use rose from 1.5 % to 16.0 % among high school students and from 0.6 percent to 5.3 % among middle school students.[1]
- In 2013-2014, 81% of current youth e-cigarette users cited the availability of appealing flavors as the primary reason for use
- In 2014, 12.6% of U.S. adults had ever tried an e-cigarette, and about 3.7% of adults used e-cigarettes daily or some days

    (from FDA)

- A British study found that people who wanted to quit smoking were about 60 % more likely to succeed if they used e-cigarettes compared to would-be quitters who tried an anti-smoking nicotine patch or gum.
- Toxicity tests show e-cigarettes are not as harmful as regular cigarettes
- e-cigarettes do contains some carcinogens

- People using e-cigarettes to quit smoking were also 60% more successful than people using willpower alone
- An e-cigarette cartridge contains a high concentration of nicotine that, if ingested, can be very poisonous or even fatal.
- e-cigarettes contain nicotine but not smoke by–products.

(From WebdMD)

Circle the claim (thesis) you are supporting:

A. e- cigarettes are dangerous and can lead to addiction to nicotine and should be regulated to the same extent as cigarettes.

B. e-cigarettes are a healthier alternative to regular cigarettes and should not be regulated.

Your outline: Write your outline below, listing key points that support your claim. Include any facts, reasons, and claims that you believe will strengthen your argument.

Appendix F

Argument Lecture PowerPoint:

https://docs.google.com/presentation/d/13ArwBvfH5Hw0-

biHn3jcmvtDvFunXxkNgm7y65r9osA/edit?usp=sharing

Slide 1

Evaluating an Argument:

Considering Alternative Perspectives and Bias

Using critical thinking and argument analysis
From *Little, Brown Handbook*, Hubbuch, and the
Toulmin and Walton Methods of Argumentation

by Sharon Radcliff

Slide 2

What makes a good argument?

Slide 3

Review of Argument

- Claim supported by evidence linked with logic (or a reason) to the claim
- Counterarguments are
- Integrated into claim or rebutted with a new claim
- Backing supports evidence and the reasoning connecting the evidence to the claim

Slide 4

What are some types of claims you can make?

Slide 5

Claims

- Fact: In times of political uncertainty, the stock market dips.
- Value: Helping people in need is good.
- Policy: Having a minimum wage is good for society.

Slide 6

What are different kinds of evidence we can use?

Slide 7

Evidence

- Facts
- Statistics
- Case studies
- Anecdotes
- Expert opinions

Slide 8

Developing an Argument

- Often begins with investigating a topic
- Coming up with a hypothesis
- Exploring and testing the hypothesis against the evidence
- Modifying your hypothesis
- Creating a claim and backing it with evidence
- Considering alternative and/or opposing viewpoints

Slide 9

First step in researching or investigating a topic: Ask what do I know?

- Sample topic:
- Effect of television violence on aggressiveness in children.
- Some questions to ask:
- What do I already know about this topic?
- What do I already believe about this topic?
- Do I think television does or does not affect behavior in children?

Slide 10

Am I biased?

- Sometimes what I know or believe about a topic may
- create tunnel vision as I do my research.
- For example if I believe violence on TV does cause aggression in children I may pay more attention to research that supports this than research that disputes this or offers alternative perspectives on it.

Slide 11

Sometimes even our own biases are hidden

- Sometimes we may not even be aware that we have a certain bias on a topic.

Slide 12

What do you see

What do you see?

Thomas Hoepker's 9/11 Photo

8

Slide 13

Analysis

- Photo taken by Hopkner
- Subjects dispute "callous" interpretatione
- http://www.slate.com/articles/news_and_politics/culturebox/2006/09/its_me_in_that_911_photo.html

Slide 14

What do you see?

Slide 15

- Toppling of Saddam statue: Propaganda or reality?
- It did happen, but most of the crowd were reporters not Iraqi citizens

https://www.theatlantic.com/international/archive/2011/01/the-truth-about-iconic-2003-saddam-statue-toppling/342802/

What is important about this photo?

Earthrise Photo

- Apollo 8, the first manned mission to the moon, entered lunar orbit on Christmas Eve, Dec. 24, 1968. That evening, the astronauts-Commander Frank Borman, Command Module Pilot Jim Lovell, and Lunar Module Pilot William Anders-held a live broadcast from lunar orbit, in which they showed pictures of the Earth and moon as seen from their spacecraft. Said Lovell, "The vast loneliness is awe-inspiring and it makes you realize just what you have back there on Earth." They ended the broadcast with the crew taking turns reading from the book of Genesis.

Historical perspective

Slide 19

What is happening?

Slide 20

Describe each photo
(This was after Hurricane Katrina)

Slide 21

Also After Hurricane Katrina

White People - FIND

How they were captioned

- Caption: A young man walks through chest deep flood water after looting a grocery store in New Orleans.

- Caption: Two residents wade through chest-deep water after finding bread and soda from a local grocery.

Captions Show Bias

- Both photos are very similar and provide the same level evidence for what the people are doing, getting supplies after Hurricane Katrina, but bias is inserted into the interpretation made when the photos are captioned.

- This bias could be implicit or unconscious, created and reinforced in the mind of the captioner by media depictions of race.

In doing research and constructing your own argument be aware of "Myside" bias

- Myside bias is the tendency to take in only information that supports your pre-conceived ideas about a topic.
- Myside bias can weaken your research process and your ability to produce a good argument paper by limiting your attention to alternative or opposing views.
- Alternative views and the evidence supporting them must be included and discussed critically in your paper in order to increase your own credibility and the strength of your argument.

25

What do I want to know?

- Once I establish what I know about the topic and what my own assumptions are, I am at the stage of asking questions about what I want to know about this topic.
- This is NOT the time to decide my thesis statement; I may have some ideas but I need to approach my research with an open mind at this point.
- First step is research: Search the Web and library databases for information on this topic, using keywords

26

Some areas of inquiry and keywords

- Are there studies about this topic?
- Has anyone explored or proved a connection?
- What criteria do researchers use to prove a child is more or less aggressive?
- Some search terms: television or TV, effect or aggressiveness, children or youth
- How do I evaluate an argument and find points for my own paper?

27

Example Argument from an Article Abstract:

- **Children should not be exposed to TV violence because it will cause them to behave more aggressively.** A study showed that children who watched more violent shows on television were more likely to be told to go to the principal's office. **Going to the principals office is often caused by showing aggressive behavior.** Children who watched more violent shows also spent more time overall watching TV, and less time with peers, doing homework or participating in family activities; these could be contributing factors to the aggressive behavior. **Although there may be other factors involved, the strong correlation the study showed between violent TV shows (not just any TV shows) indicates that it is the violence on these TV shows is a likely cause of the students' aggressive behavior.**

28

What are the major parts of an argument in the abstract?

29

For this article:

- Claim
- Evidence
- Logic
- Counter-argument
- Rebuttal:

30

Content Analysis of an Argument

In the argument,

look for the following elements: (ask the class)

- **Claim** (factual, value, policy – usually policy claims are a mix of value based ideas and facts)
- **Evidence** (data, statistics, empirical studies, anecdotal)
- **Reasoning:** Logical link between evidence and claim/hidden assumptions
- **Alternative viewpoint** or counter argument
- **Rebuttal** (argument against the opposing view; will have its own claim, evidence, etc..)
- Backing: Ideas , values assumption behind the argument (not always stated)

31

What are some alternatives to the claim?

32

Alternative viewpoints and Counterarguments

- Another way to view the evidence or presentation of a different claim that opposes yours.
- **Example**: Viewing more violent television is caused by lack of opportunities for family and peer interactions which is the real cause of the increase in aggression in the children who view more TV.
- **Rebuttal**: This argument can be rebutted or refuted by finding evidence that the television is really affecting behavior.

33

Critical Awareness

- Some voices may be considered more **"privileged"** than others.
- Some view may be **biased** or **dominate** the debate on a topic.
- It may be helpful to read material with an understanding of this and **be aware of bias, both your own and of others**.
- For example a study funded by the television industry might not favor results that show a connection between violent television and aggression in children.

34

Group Work in Class

- Read the two articles on the Green New Deal Pair up with another student
- Each of you pick opposite sides on the debate
- Use the articles to come up with your own argument
- Explain your side of the argument to your partner who then asks questions and challenges your argument. Come up with at least 5 questions these can relate to the contents of and assumptions made in the argument or to its credibility or reliability.
- Repeat switching roles

35

Vee Diagram

QUESTION:

ARGUMENT   COUNTERARGUMENTS

V

36

Content Analysis of an Argument

In the argument,

look for the following elements: (ask the class)

- **Claim** (factual, value, policy – usually policy claims are a mix of value based ideas and facts)
- **Evidence** (data, statistics, empirical studies, anecdotal)
- **Reasoning**: Logical link between evidence and claim/hidden assumptions
- **Alternative viewpoint** or counter argument
- **Rebuttal** (argument against the opposing view; will have its own claim, evidence, etc..)
- Backing: Ideas , values assumption behind the argument (not always stated)

31

What are some alternatives to the claim?

32

Alternative viewpoints and Counterarguments

- Another way to view the evidence or presentation of a different claim that opposes yours.
- **Example**: Viewing more violent television is caused by lack of opportunities for family and peer interactions which is the real cause of the increase in aggression in the children who view more TV.
- **Rebuttal**: This argument can be rebutted or refuted by finding evidence that the television is really affecting behavior.

33

Critical Awareness

- Some voices may be considered more **"privileged"** than others.
- Some view may be **biased** or **dominate** the debate on a topic.
- It may be helpful to read material with an understanding of this and **be aware of bias, both your own and of others**.
- For example a study funded by the television industry might not favor results that show a connection between violent television and aggression in children.

Group Work in Class

- Read the two articles on the Green New Deal Pair up with another student
- Each of you pick opposite sides on the debate
- Use the articles to come up with your own argument
- Explain your side of the argument to your partner who then asks questions and challenges your argument. Come up with at least 5 questions these can relate to the contents of and assumptions made in the argument or to its credibility or reliability.
- Repeat switching roles

Vee Diagram
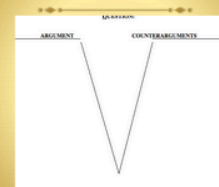
Integrating both sides

- Use the critique from your partner to build a new argument that incorporates ideas from both sides and answers questions raised during the argument exchange process.
- Have your ideas about the Green New Deal changed? If so, how; if not, why not?
- Finally merge with another pair and create new argument together on a poster to share with the class.

37

More information

For more information on these concepts, refer to:

- Little, Brown Compact Handbook [in *Writing & Composition reader*] part 2: 9c Critical Thinking and Reading, pp. 85–87; 11a–11c Arguments pp. 104–112.
- Hubbuch's *Writing Research Papers Across the Curriculum*, section 4: Reading Critically and Taking Notes, pp. 91–105.
- Toulmin's *Uses of Argument*. http://writing.colostate.edu/guides/guide.cfm?guideid=58

38

Appendix G

In-class Pair-Work Using Opposing Viewpoint Articles on

Green New Deal

In Class Pair Work Using Opposing Viewpoint Articles on

the Green New Deal

Part I

Review the two articles on Green New Deal construction controversy that were assigned for homework.

(Articles from New York times and CQ Researcher provided.)

Decide with your partner who will work on creating an argument supporting the Green New Deal and who will oppose it.

Circle the claim (thesis) you are supporting:

A.   The Green New Deal should be passed to mitigate the effects of climate change and social injustice.

B.   The Green New Deal should not be passed because it costs too much and will disrupt our industries and economy.

Your outline: Write your outline below, listing key points that support your claim. Include any facts, reasons, and claims that you believe will strengthen your argument that you can find in either article. Before you begin try to identify and write down any knowledge and biases you may have on this topic. After writing out your outline describe briefly if your own bias influenced your outline. (Use the back of this sheet if needed.)

Now exchange papers. Read through your partner's argument and comment on it by writing out questions or challenges to particular points on a separate piece of paper. Also list any evidence that you believe contradicts their argument. Re-exchange papers. Spend a few minutes, reading the comments and discussing the comments with your partner on both outlines. Discuss and collaboratively create a Vee-diagram (Nussbaum, 2011) of a new argument that you agree on. Draw arrows to connect opposing , claims, critically examine evidence for those claims; discuss possible ways to integrate claims. Come up with a solution that Addresses both sides of the argument.

Vee Diagram: QUESTION

<u>   **ARGUMENT**   </u>   <u>**COUNTERARGUMENTS**   </u>

INTEGRATE
Which side is stronger and why?
Consider evidence and data: *strength, relevance, source, credibility and*
type of evidence provided.
Draw a line to opposing claims; what is the evidence for each?
Is there a **compromise or creative solution?**
Final Conclusion (claim you would ultimately argue for based
on assessment of evidence on both side)

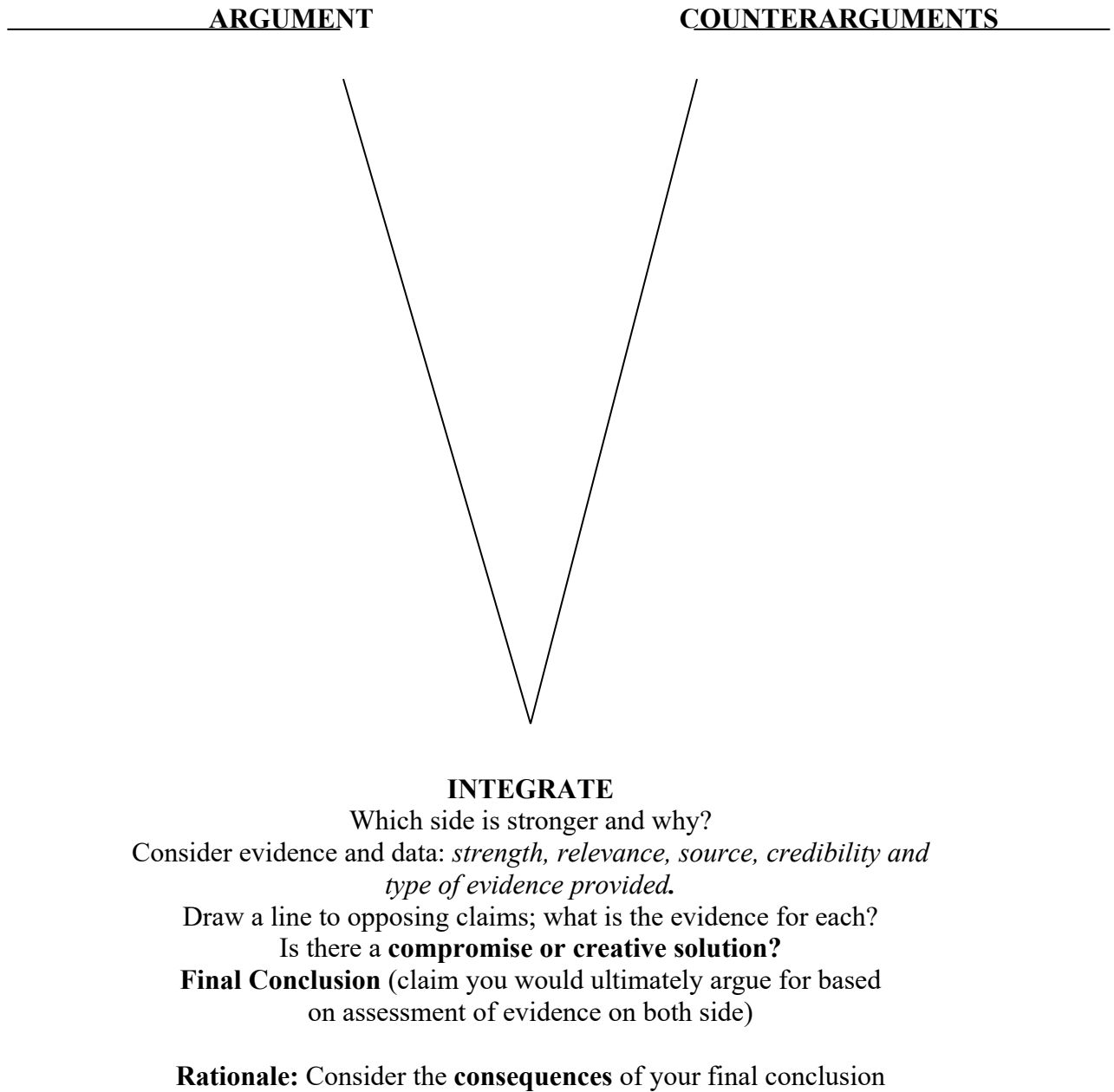**Rationale:** Consider the **consequences** of your final conclusion

Figure 2. Vee Diagram (Nussbaum & Edwards, 20

Part II

Use the posters provided to create a new outline supporting or opposing the passage of the Green New Deal using ideas from both your outlines and the discussion you just had. Remember to include opposing claims and evidence and a rebuttal.

When you are done, walk around the room and using the stickers provided choose the argument outline, you think is strongest (not necessarily one you agree with, but the best argument outline using criteria we have discussed. Be prepared to explain your choice. You may not choose your own for this exercise

Appendix H

Controversial Issue Argument

Outline Homework

Controversial Issue Argument Outline Homework

After reading the background information packet on gun control from CQ

Researcher and other sources provided by the instructor, do the following:

1) Using the library databases, find two more articles on your controversial issue

topic which contain information supporting more than one perspective on

your topic.

2) Identify the stakeholders who care about this topic. Describe what are the

views held by stakeholders on this topic

3) Cite and list key points from the articles for each major viewpoint

identified, along with key evidence.

4) Create a Vee-diagram on your topic

Vee Diagram: QUESTION
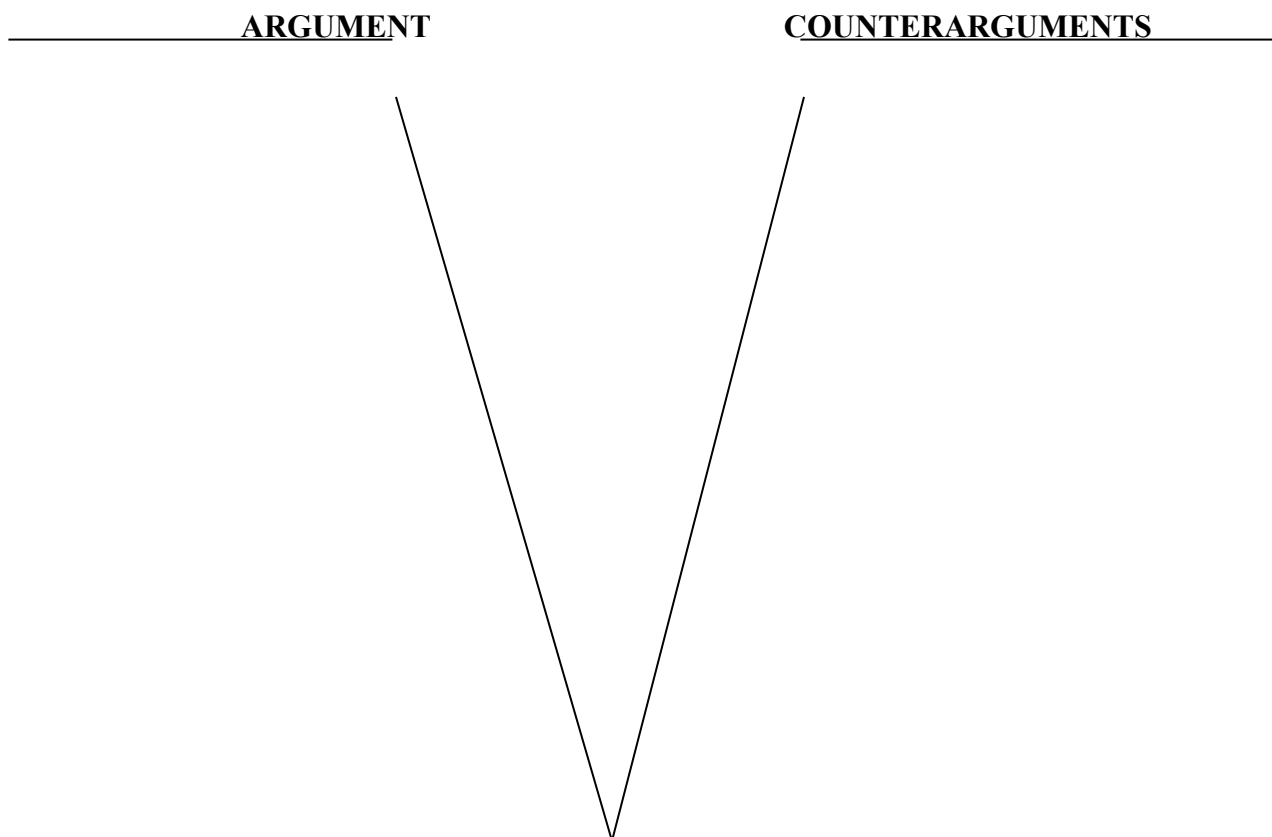
<u>**ARGUMENT**</u>   <u>**COUNTERARGUMENTS**</u>

INTEGRATE
Which side is stronger and why?
Consider evidence and data: *strength, relevance, source, credibility and type of evidence provided.*
Draw a line to opposing claims; what is the evidence for each?
Is there a **compromise or creative solution?**
Final Conclusion (claim you would ultimately argue for based on assessment of evidence on both side)

Rationale: Consider the **consequences** of your final conclusion

Figure 2. Vee Diagram (Nussbaum & Edwards, 2011)

5) Using the working thesis that you developed from the Vee-diagram, write out a tentative outline for your paper; remember to include evidence from both sides of the issue.

6) Include citations to sources used for the points made in your outline.

.

Appendix I

Postoutline Assignment

Postoutline: (30 minutes)

(Measures students' ability to create a sound argument on a controversial issue)

For this test, the benefits and dangers of the effects of marijuana use will be used as a sample argument topic.

According to the Food and Drug Administration (FDA) Marijuana, which can also be called weed, pot, dope, or cannabis, is the dried flowers and leaves of the cannabis plant. It contains mind-altering (e.g., psychoactive) compounds like tetrahydrocannabinol, or THC, as well as other active compounds like cannabidiol, or CBD, that are not mind-altering.

Create an outline of an argument that supports one of the claims below using the facts provided and any other statements or facts related to the topic from your own knowledge.

Here are a number of facts, and statements about Marijuana

From CDC:

About 1 in 10 marijuana users will become addicted. For people who begin using before the age of 18, that number rises to 1 in 6. [1-3]

Heavy users of marijuana can have short-term problems with attention, memory, and learning, which can affect relationships and mood.

Marijuana also affects brain development. When marijuana users begin using as teenagers, the drug may reduce attention, memory, and learning functions and affect how the brain builds connections between the areas necessary for these

functions.

The main active cannabinoid in marijuana is delta-9-THC. Another active

cannabinoid is cannabidiol (CBD), which may relieve pain and lower

inflammation without causing the "high" of delta-9-THC.

Studies of man-made forms of the chemicals found in the marijuana plant can be

helpful in treating nausea and vomiting from cancer chemotherapy.[1]

Studies have found that marijuana can be helpful in treating neuropathic pain

(pain caused by damaged nerves).

Smoked marijuana, in any form, can harm lung tissues and cause scarring and

damage to small blood vessels. [1-2] Smoke from marijuana contains many of the

same toxins, irritants, and carcinogens as tobacco smoke. [3]

Smoking marijuana can also lead to a greater risk of bronchitis, cough, and

phlegm production

Marijuana use, especially frequent (daily or near daily) use and use in high doses,

can cause disorientation, and sometimes cause unpleasant thoughts or feelings of

anxiety and paranoia

Two medicines have been made as pills from a chemical that's like THC, one

of the chemicals found in the marijuana plant that makes people feel "high."

These two medicines can treat nausea if you have cancer and make you

hungry if you have AIDS and don't feel like eating. But the chemical used to

make these medicines affects the brain also, so it can do things to your body

other than just working as medicine.

Another marijuana chemical that scientists are studying, called cannabidiol

(CBD), doesn't make you high because it acts on different parts of the

nervous system than THC Scientists think this chemical might help children

who have a lot of seizures (when your body starts twitching and jerking

uncontrollably) that can't be controlled with other medicines. Some studies

have started to see whether it can help.

From *CQ Researcher*

Over 90 % of Americans support medical marijuana legalization

29 states and the district of Columbia have legalized the medical use of marijuana

The substances derived from marijuana for medical can be regulated and consumed more safely then the plant itself which varies in THC content and may be consumed via smoking which is unhealthy for lungs and heart of consumers.

Easier access could increase use , especially in younger people.

Circle the Claim you are supporting, then write out your argument outline on

 the back of this sheet.

A. Marijuana is a dangerous drug and should not be legalized by the federal
   government.

B. Marijuana is more beneficial then dangerous and should be legalized by
   the federal government.

Appendix J

Analytic Scoring Rubric Argumentative Writing

Analytic Scoring Rubric for Argumentative Writing

Analytic Scoring Rubric for Argumentative Writing (ASRAW)

1.Claim(s) (5%)	Score: 5			Score: 0	
	States point(s) of view			Does not state point(s) of view	

2. Data (25%)	Score: 25	Score: 20	Score: 15	Score: 10	Score: 0
	a. Provides multiple reasons for the claim(s), and b. All reasons are sound/acceptable and free of irrelevancies	a. Provides multiple reasons for the claim(s), and b. Most reasons are sound/acceptable and free of irrelevancies, but one or two are weak	a. Provides one to two reasons for the claim(s), and b. Some reasons are sound/acceptable, but some are weak or irrelevant	a. Provides only one reason for the claim(s), or b. The reason provided is weak or irrelevant	a. No reasons are provided for the claim(s); or b. None of the reasons are relevant to/support the claim(s)

3. Counterargument Claim(s)/Alternative Point(s) of View(10%)	Score: 10			Score: 0	
	Provides counterargument claim(s)/alternative view(s)			Does not provide counterargument claim(s)/alternative view(s)	

4. Counterargument Data/Supporting Reasons for Alternative Point(s) of View(25%)	Score: 25	Score: 20	Score: 15	Score: 10	Score: 0
	a. Provides multiple reasons for the counterargument claim(s) /alternative view(s), and b. All counterarguments/reasons for the alternative view(s) are sound/acceptable and free of irrelevancies	a. Provides multiple reasons for the counterargument claim(s)/alternative view(s), and b. Most counterarguments/reasons for the alternative view(s) are sound/acceptable and free of irrelevancies, but one or two are weak	a. Provides one to two reasons for the counterargument claim(s) /alternative view(s), and b. Some counterarguments/reasons for the alternative view(s) are sound/acceptable, but some are weak or irrelevant	a. Provides only one reason for the counterargument claim(s)/alternative view(s), or b. The counterargument/reason for the alternative view is weak or irrelevant	a. No reasons are provided for the counterargument claim(s)/alternative view(s); or b. None of the reasons are relevant to/support the counterargument claim(s)/alternative view(s)

5. Rebuttal Claim(s) (10%)	Score: 10			Score: 0	
	Provides rebuttal claim(s)			Does not provide rebuttal claim(s)	

6. Rebuttal Data[a] (25%)	Score: 25	Score: 20	Score: 15	Score: 10	Score: 0
	a. Refutes/points out the weaknesses of all the counterarguments, and b. All rebuttals are sound/acceptable c. The reasoning quality of all the rebuttals are stronger than that of the counterarguments	a. Refutes/points out the weaknesses of all the counterarguments, and b. Most rebuttals are sound/acceptable, but one or two are weak c. The reasoning quality of most rebuttals are stronger than that of the counterarguments, while one or two are equal to that of the counterarguments	a. Refutes/points out the weaknesses of all the counterarguments, and b. Some rebuttals are sound/acceptable, but some are weak c. The reasoning quality of some rebuttals are stronger than that of the counterarguments, while some are weaker than that of the counterarguments	a. Refutes/points out the weaknesses of some counterarguments, or b. Few of the rebuttals are sound/acceptable; most of them are weak, or c. The reasoning quality of most rebuttals are weaker than that of the counterarguments	a. No rebuttals are provided; or b. None of the rebuttals can refute the counterarguments

Note. [a] An implicit requirement of rebuttal data is subsumed under the requirements of row 4 "Counterargument Data" , that is, each piece of rebuttal data should be aligned with each piece of counterargument data in terms of both quantity and logic.

(Stapleton & Wu, 2015)