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The Role of Argumentative Writing in Teaching Controversial Issues: A Mixed Methods Research

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Abstract

The purpose of this study is to examine the role of argumentative writing in teaching controversial issues in Social Studies education. We employed the convergent design as a mixed-methods approach. The sample consisted of 49 prospective social studies teachers. Data were collected through an attitude scale towards controversial issues, semi-structured interview forms, focus group interviews, and respondents' diaries. The respondents were also asked to write argumentative essays on particularly controversial issues (i.e., brain migration, technology, nuclear energy, and different types of government) in the Social Studies course. The written tasks were evaluated throughout the period. Descriptive and predictive analyses were used to examine the quantitative data, while content and descriptive analyses were performed for the qualitative data, which were additionally analysed using MAXQDA 2020. A statistical significance was found between the respondents' pre-test and post-test scores regarding controversial issues. It appeared that drawing on controversial matters was effective in developing certain skills such as researching, critical thinking, recognizing one's own opinions, respecting different opinions, using scientific evidence, and making assessments. We believe that argumentative writing plays a critical role in developing these skills, which are likely to come out while teaching controversial issues. It could be assumed that writing argumentative essays is an alternative way for teachers to create a democratic classroom atmosphere while teaching controversial issues.

Keywords: Controversial issues, Argumentative writing, Social studies teaching

Introduction

Through the discourse of "Hard questions: Learning to teach controversial issues", Pace (2021) pointed out that the world we live in is faced with increasing political, social, economic, and environmental problems, and that it is now more urgent than ever to teach controversial issues. The use of controversial issues (Hand & Levinson, 2012), defined as rational disagreements with opposing views, is an important pedagogical way to both raise awareness of social problems and enable students to acquire a variety of skills necessary to address them (National Council for Social Studies [NCSS], 2016). Science plays a major role in finding solutions to many issues that are considered controversial in all societies (Oulton, Dillon & Grace, 2007). Regarding the solution process, despite the clear impact of controversial issues in the field of social sciences and socio-scientific issues including both scientific and social issues in the field of science (Çepni & Geçit, 2020), they are often avoided while teaching (Pace, 2021). In this respect, there are sources of problems such as school management, parental attitude and classroom climate (Baki-Pala, 2020), and the idea that knowledge is absolutely invariable (Kelly, 1986). One of the important reasons why controversial issues are not included in the teaching process is the inadequacy of teachers in terms of suitable methods on how to teach them (Nganga et al., 2020). Given that, the success in teaching controversial issues seems to be directly proportional to teachers' proficiency in these subjects (Öztürk & Kuş, 2019).

The present study resulted from the concern of how to teach controversial issues in the Social Studies course in a more qualified manner and draw attention to them. We aimed to build an alternative teaching process by integrating the nature of controversial issues and the functions of argumentative writing.

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Theoretical Framework

Controversial Issues and Social Studies

Controversial issues, which inherently contain many conflicts (Hedley & Markowitz, 2001), refer to a range of different ideas based on different values, beliefs, and interests (Dyneson & Gross, 1985), as well as political, economic, religious, moral, social, or individual issues and problems of interest to society as a whole (Yazıcı & Seçgin, 2010). In other words, controversial issues are those about which the society has obvious disagreements, is divided and segregated, and makes contradictory statements or offer solutions by taking different values as criteria (Stradling, 1984, p. 2). Also, controversial issues include people's values or beliefs, but are also considered important by the majority and concern the general public, yet cannot be solved by reaching a consensus on an opinion (Avaroğulları, 2015 p. 140). Since controversial issues are themselves controversial (Dearden, 1981; Dewhurst, 1992), it is not possible to express controversial issues with a widely recognised definition. This is believed to be because the definitions of controversial issues are handled in the context of subjective criteria. Bailey (1975) emphasized the fact that many people have different opinions about an issue and put forward contradictory ideas about it, thus making it controversial, whereas Dearden (1981) indicated that the assertion of rational and logical but contradictory ideas about an issue makes that controversial. Although controversial issues differ according to individuals' values, moral codes, and ethical principles (Oulton, Dillon & Grace, 2004), it stands out as an important tool that prepares students to avoid and resolve conflict and seek peaceful solutions (Hedley & Markowitz, 2001).

Schools must help students learn to deal with problems related to their own lives, make judgments about these problems, and take responsibility for their own lives (Dewhurst, 1992). This reality revealed by Dewhurst for schools is the best answer to the question, 'Why should controversial issues be included in schools?', since the topic of controversial issues is an effective tool for learners to think about real-life problems, evaluate different perspectives, produce versatile solutions to problems, and put forward their own ideas with justifications. In addition, discussing over controversial issues helps develop students' attitudes and skills such as learning about social problems, critical thinking, and willingness to compromise (National Council for Social Studies [NCSS], 2016). In this sense, students' confrontation with controversial issues allows them to think more deeply about the content, to compare their own values and those of others (Soley, 1996), thereby developing a critical consciousness. In addition, this developing critical consciousness allows people to define how they understand the world, how others behave, and a perspective on creating a more just world for everyone (Misco, 2012). In this process, controversial issues develop certain skills and attitudes such as examining current problems, making rational choices among alternatives, using rational methods when dealing with problems, understanding that different perspectives are normal and valuable, and recognizing that reasonable compromise is part of the democratic decision-making process (NCSS, 2016). At this stage, discussing a controversial issue improves the reflective dialogue among students (Harwood & Hahn, 1990), allowing them to accept the existence of different perspectives on a given issue (Byford, Lennon & Russell, 2009).

In healthy democracies, learners must be exposed to controversial issues so that they will become active, participatory, and sensitive individuals towards social phenomena (Yazıcı & Seçgin, 2010). To clarify the question of 'How will controversial issues be adapted to the teaching process?', Apter (2016) indicated that "*theoretically, schools, especially Social Studies classes, are of particular importance for students to take part in current and historical discussions that focus on controversial issues*". When considered together, it is not difficult to integrate the controversial issues with the Social Studies course. The fact that Social Studies consists of political and social issues that concern the general public and that democracy education is an interdisciplinary field to be carried out actively strengthens the bond between controversial issues and Social Studies (Baloğlu-Uğurlu & Doğan, 2016). Many reasons have been presented to strengthen this bond, such as: a) preparing students for citizen roles in a pluralistic democracy, b) developing critical thinking skills, and c) improving interpersonal skills (Harwood & Hahn, 1990). The main rationale of those who argue that controversial issues should be included in the curriculum of social science courses is the view that opening unresolved, current controversial social issues to discussion will help students acquire the necessary skills as citizens of a democratic society (Baki-Pala, 2020). The reason for such understanding is that the essence of a healthy democracy is to ensure open dialogue on matters of public interest. In this regard, discussion of controversial social, political, and economic issues should be an integral part of the education provided to young citizens (Harwood & Hahn, 1990). In other words, controversial issues are a major aspect of citizenship education and very influential in developing students' competencies regarding citizenship. (Ersoy, 2013). Being aware of the relationship between controversial issues and the goals of social studies, teachers of this subject tend to include such issues in their lessons while teaching their students to be

sensitive to the problems of their country and the world and enabling them to improve their civic competence (Öztürk & Kuş, 2016). Apparently, controversial issues make remarkable contributions to students in terms of gaining knowledge, skills, and values regarding the Social Studies course (Çopur & Demirel, 2016). The benefit of these contributions is, however, as real as the difficulty of bringing controversial issues into learning environments (Günel & Kaya, 2016). Many factors could be associated with this difficulty, such as. lack of knowledge about controversial issues, time management problems, concern about not being able to complete the curriculum (Günel & Kaya, 2016), teachers' feeling of inadequacy on such issues (Aynuz, 2020), parents' possible reactions (Günel & Kaya, 2016; Yazıcı & Seçgin, 2010), school administration (Abu-Mamdan & Khader, 2014), fear of being misunderstood, fear of exam-oriented teaching (Çopur & Demirel, 2016), class management problems (Öztürk & Kuş, 2019; Tuncer, 2018), and professional inadequacies regarding certain teaching methods on how to teach such topics (Avaroğulları, 2015). Despite the crucial responsibilities of educational stakeholders in overcoming these problems, teachers still play the central role. Teachers should, therefore, be able to support students' critical thinking skills in teaching controversial issues, design the classroom environment appropriately in line with instilling in respect for different ideas, and approach controversial issues consciously by being aware of their own academic freedom (Öntaş et al., 2021). In other words, controversial issues should be examined in a Social Studies class without assuming that there is only one "correct" answer to controversial issues (Rambosk, 2011). Social Studies teachers should enable students to gain a critical view by confronting them with different ideas (NCSS, 2016). In the event of a lack of an approach that encourages research on controversial issues, critical thinking and developing evidence-based arguments, the aims of Social Studies teaching will not be achieved at the desired level (Yılmaz, 2012). Teachers' attitudes (Lockwood, 1996), who are the main actors to implement the curriculum towards controversial issues are also the key determinants in achieving these desired goals. As a matter of fact, Hess (2005) stated that teachers exhibit four different attitudes referred to as "denial, privilege, avoidance, and balance". Similarly, Kelly (1986) emphasized that teachers who bring controversial issues into their classrooms adopt and display approaches such as exclusive neutrality, exclusive partiality, neutral impartiality, and engaged impartiality. Just like Hess and Kelly, Kitson and McCully (2005), evaluated the roles of teachers, and indicated that teachers assume roles in such a way as to show avoiding, containing, and risk-taking attitude. Starting with the motto "*Hard questions: Learning to teach controversial issues*", Pace (2021), drew a framework consisting of eight steps on how to teach controversial issues.

Contrary to what was pointed out by Philpott et al., (2011) who drew attention to controversial issues by saying, "Controversial issues: To teach or not to teach? That is the question!", Goodall asserted that children are already aware of social problems and conflicts, so our main question should be "How should we teach?" rather than asking, "Should we teach?" or "Should we not teach?" (Goodall, 2007, as cited in Baki-Pala, 2020). In line with the suggestions of Goodall, this study focuses on how we should teach controversial issues. First of all, the ideas of prospective teachers on how to teach controversial issues were taken, as presented in Figure 1. (The vast majority of prospective teachers stated that they had no idea about how to teach controversial issues, while some stated that teaching methods and techniques such as debating, brainstorming, and panel discussion could be used.)



Figure 1. Ideas on how to teach controversial issues

The image that emerged in this study is also found in the literature, especially in a recent study by Nganga, et al. (2020). The authors reported that most of the respondents had limited knowledge about the methods to teach controversial issues and pointed to the fact that they did not lead a way of life that would help them acquire knowledge, experience, and teaching skills about controversial issues. In a study by Aynuz (2020), the prospective teachers emphasized that it is important to provide a democratic classroom environment to teach controversial issues. Still, they could not reveal clear visibility on how the teaching process would be carried out. Having focused on the teaching practices of Social Studies teachers, Öztürk and Kuş (2019) determined that teachers mostly used the method of lecturing, while the discussion method was the least for teaching controversial issues, which they found very interesting. Likewise, Fakhruddin and Soekardjo (2021) stated in their study that teachers

were not knowledgeable enough about how to teach controversial issues. Success in teaching controversial issues is directly related to teachers' knowledge regarding the teaching approach, method and techniques used in the teaching process of these subjects (Öztürk & Kuş, 2019). There are some other different models for teaching controversial issues in the literature. For example, Hess (2002) proposed *town meeting model*, *seminar model*, and *public issues discussion model*; Rossi (2006) offered *scored discussion*, *structured academic controversy*, and *advocate decision*, and Hand and Levinson (2012) suggested *discussion*, and Johnson, Johnson, and Smith (2000) set several models such as *constructive controversy*.

Having made a broad assessment of how controversial issues can be taught, Baki-Pala (2020) pointed out that argumentation is one of the teaching approaches used in teaching controversial issues. It is believed that "argumentative writing", which brings together the multiple effects of writing on cognitive and affective learning processes and the basic components of argumentation, can be an alternative approach in teaching controversial issues (Dingler, 2017).

Argumentative Writing

Based on using the patterns of written language to express ideas or messages (Murtadho, 2021), writing is an important competence that develops the skills of synthesis, comprehension skills for disseminating information (Arroyo, Fernández-Lancho & Martínez, 2021). It is a skill that aims to use language to express language in written form through cognitive and organizational strategies (Anggraeny & Putra, 2017). In fact, Setyowati, Sukmawa, and Latief (2017) asserted that writing skill is one of the strong criteria of intelligence. In other words, by enabling people to reflect representations of reasoning, recording, examining, and evaluating information (Ferretti & Graham, 2019), writing plays an important role in learning and enhancing self-expression (Graham, Gillespie, & McKeown, 2013). Briefly, writing provides an environment where new concepts are associated with known ones, information is synthesized, relationships and inferences are discovered, and basic elements of knowledge are acquired (Bangert-Drowns, Hurley & Wilkinson, 2004). Argumentation is a crucial booster in ensuring to create such an environment. The reason for it is that it is composed of a discussion process in which students present different reasons to support or refute the claims about certain topics (Duschl, Ellenbogen & Erduran, 1999), as well as the process of inference of their own claims and ideas (Zohar & Nemet, 2002). As a process of making claims and using evidence and reasoning to support them, argumentation (Jin, Su & Lei, 2020) is an approach used to comprehend and demonstrate the importance of a particular issue (Kuhn, 2005). Argumentation is a prerequisite for persuasion in writing (Driver, Newton & Osborne, 2000) and an essential tool for argumentative writing (Ebadi & Rahimi, 2018).

By supporting arguments in written form (Ferretti, Lewis & Andrews-Weckerly, 2009) and making students adopt a certain point of view and then convince other parties to take the same point of view (Nippold, Ward-Lonergan, & Fanning, 2005), argumentative writing is becoming a critical skill, particularly focused on reasoning and debate, in today's century (UNESCO, 2016). This skill inspires students to research from reliable sources (Setyowati et al., 2017) to collect evidence, gather and evaluate such evidence, develop their knowledge, and form various arguments (Murtadho, 2021). It includes identifying the empirical or experiment-based evidence for a claim, evaluating the claim that makes up the argument, and the reasons linking the evidence and the situation (Allison et al., 2021). An argument, which can be considered a building block of argumentative writing in this assessment, occurs when the author attempts to persuade the respective target audience through justification and evidence (Vorobej, 2006). Facts must be presented in a systematic, logical and orderly manner so that an author can reach a convincing conclusion (Fisher, 2013). However, this presentation is not an easy task, as argumentative writing requires quite complex cognitive and linguistic skills (Nippold & Ward-Lonergan, 2010; Dingler, 2017; Drid, 2014; Ferretti & Fan, 2016) and involves teachers' complex social interactions with their students during the teaching process (Olsen et al., 2017). Argumentative writing is therefore a very difficult process for many students (Fan & Chen, 2021; Gleason, 1999). Such a difficulty is likely to cause students to be unable to merge relevant evidence, results, and opinions while writing an essay on account of their insufficient knowledge about argumentation (Koh, 2004). Besides that, many students lack effective argumentation skills, making it difficult for them to offer competent evidence to support a claim or develop their argument with counter-claims (Liu & Stapleton, 2014). Argumentative writing is actually composed of both the structural process of words, phrases, and sentences, and a much more complex process including the aspects such as understanding the issue, developing the statements, editing with a correlative manner, and putting ideas into writing (Pei et al., 2017). In this process, students should master the complex aspects of argumentative writing and gain skills in composing the text from an analytical framework (Cambell & Filimon, 2018). In order to ensure this, it is important to develop students' metacognitive and critical thinking capacities (Murtadho, 2021). According to Fisher (2013), the better students' metacognitive and critical thinking skills are, the better they will be able to write an argumentative article fluently. To do this, students should be encouraged to think critically or participate in discussions, considering

different views or arguments (Salminen, Marttunen & Laurinen, 2010). The nature of argumentative writing enables students to develop their knowledge while being engaged in argumentative learning or the problem-solving and reasoning processes necessary to gain this perspective (Kiuahara et al., 2020). In fact, it is described as a problem-solving process that requires the author to self-regulate to reach a persuasive goal (Graham & Harris, 1997) from the cognitive perspective (Graham, 2018; MacArthur & Graham, 2016). It specifically indicates a developed aspect of writing based on students' cognitive abilities rather than language proficiency (Ferretti & Lewis, 2013). However, it has a positive impact on students' conceptual understanding and problem-solving skills and their ability to communicate with a genuine and scientific manner (Aquirre-Mendez et al., 2020). Argumentative writing process enables students to develop their skills as regards scientific thinking, learning and research skills (Diaz, 2017), and acquire knowledge (Driver, Newton & Osborne, 2000). This may lead to a significant rise in an individual's intrinsic motivation in academic terms (Chinn, 2006). Research shows that argumentative writing, which is a demanding but necessary process, can be developed with various instructional practices (Allison et al., 2021). As a matter of fact, to improve the process of argumentative writing, Fan and Chen (2021) emphasized the necessity to render trainings on argumentation, besides including computer-aided activities; Negari (2011) suggested the use of concept maps, and Latifi et al. (2021), and Noroozi and Hatami, (2019) pointed out the necessity of peer feedback.

With its unique framework based on the basic components of argumentation, argumentative writing is a process of making a final decision by presenting the claim, justification, data, refutations, and supporting ideas (Ferretti et al., 2009; Toulmin, 2003). This process is believed to have an important role in teaching controversial issues as well as in different subject areas. In our study, we aimed to open for discussion the subjects of migration, technology, nuclear energy and different forms of governance, which are included in social studies teaching, by taking into account the elements of argumentative writing and developing different viewpoints on the subject matter.

Teaching controversial issues is a challenging task that requires teachers to create safe, supportive, and reliable classroom environments where students feel comfortable while listening respectfully to non-dominant perspectives and considering many others (Nganga et al., 2020). A teacher should feel competent in handling controversial issues and is supposed to prepare satisfying lesson plans and materials that encourage participation and be equipped to manage discussions (Hess, 2005). However, teachers can overcome the associated hurdles by adapting teaching strategies to produce lively and interesting lessons, encouraging student participation in discussions (Cotton, 2006, p. 237). Research has shown that teachers play a critical role in teaching controversial issues, but also that teachers lack sufficient knowledge of how to teach controversial issues (Philpott et al., 2011). Demircioğlu (2016), for example, emphasized that teachers lack enough knowledge about how to handle controversial issues, while Avaroğulları (2015) pointed to a change in the attitudes of teachers who had learned different teaching methods for teaching controversial issues. Similarly, Tuncer (2018) indicated that controversial issues should be included in the undergraduate curriculum, and Seçgin (2009) stated that prospective teachers should be trained on effective strategies for teaching controversial issues. Regarding how to teach controversial issues, the Ministry of National Education (2018) has provided a roadmap for teachers, stating that "current and controversial issues can be brought into the classroom through various discussion techniques by relating them to problem solving, critical thinking, use of evidence, decision making, and research skills" (Ministry of National Education [MoNE], 2018). However, it seems that it has not been clearly shown in terms of where this road-map will lead or how the aforementioned skills should be acquired. Most studies conducted on controversial issues seem to have aimed at revealing such issues and determining the opinions of teachers, prospective teachers, academics, and students in this regard (Abu-Mamdan & Khader, 2014; Baloğlu Uğurlu- Doğan, 2016; Byford, Lennon & Russell, 2009; Cotton, 2006; Çepni & Geçit, 2020; Demircioğlu, 2016; Ersoy, 2013; Günel & Kaya, 2016; Hess, 2005; Nganga et al., 2020; Öntaş et al., 2021; Öztürk, 2017; Tatar, 2019; Yücel, 2018; Uygun & Arslan, 2020; Yazıcı & Seçgin, 2010; Rambosk, 2011). In the light of this information, answers were sought to the following research questions:

- 1) Has the argumentative writing process led to a significant change in the prospective teachers' attitudes towards controversial issues?
- 2) In line with the prospective teachers' opinions concerning teaching controversial issues and the argumentative writing process:
 - a) What is the impact of teaching controversial issues on prospective teachers?
 - b) What is the impact of argumentative writing concerning teaching controversial issues?

Method

Research Design

In this paper, we employ the convergent design, as a mixed methods research approach. In this form of design, qualitative and quantitative data are analyzed and the results combined. It can be asserted that the convergent design is important in that it defines the research problem by means of quantitative and qualitative data and enables the problem to be handled from different perspectives by combining the available data (Creswell, 2017). The main purpose of this design is to collect various data that can be complementary on the same topic in order to understand the research problem in detail (Creswell & Plano-Clark, 2007; Morse, 1991). In a convergent design, data can be analyzed together or separately. In the case of analysing the data together, the qualitative data is converted into quantitative data, or the other way around. Still, there seems to be a convergence or divergence of the results if the quantitative data is converted into qualitative data when the data is analyzed separately. What is important in the convergent design is that the strengths of quantitative and qualitative data complement each other, and likewise, the weaknesses of each balance each other (Freankel, Wallen & Hyun, 2012). Creswell (2017) emphasized the necessity of taking the following 3 steps into consideration while planning a research according to the convergent design, the main purpose of which is to merge the results obtained from the analysis of quantitative and qualitative research data: *i) collecting and analysing quantitative and qualitative data separately, ii) merging or gathering two data sets together, iii) determining the extent to which the qualitative results confirm the quantitative results after the results have been merged.* Figure 2 below presents the symbolic view of the convergent design.

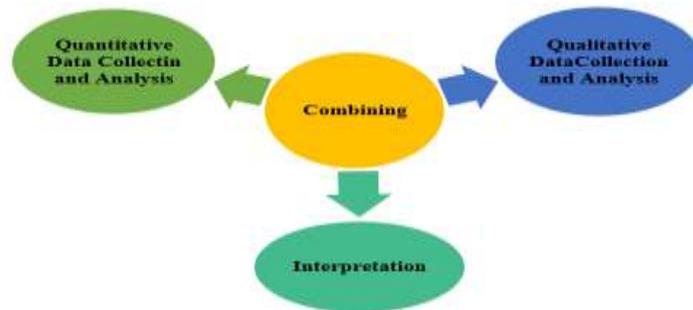


Figure 2. Convergent design, (Creswell, 2017)

To determine the impact of argumentative writing in teaching controversial issues, we collected the quantitative and qualitative data separately, performed the data analysis separately, and merged the analyzed quantitative and qualitative data in the Results section. Then, the merged findings were interpreted in the Conclusion and Discussion sections. Figure 3 presents the general scheme of the research methodology.

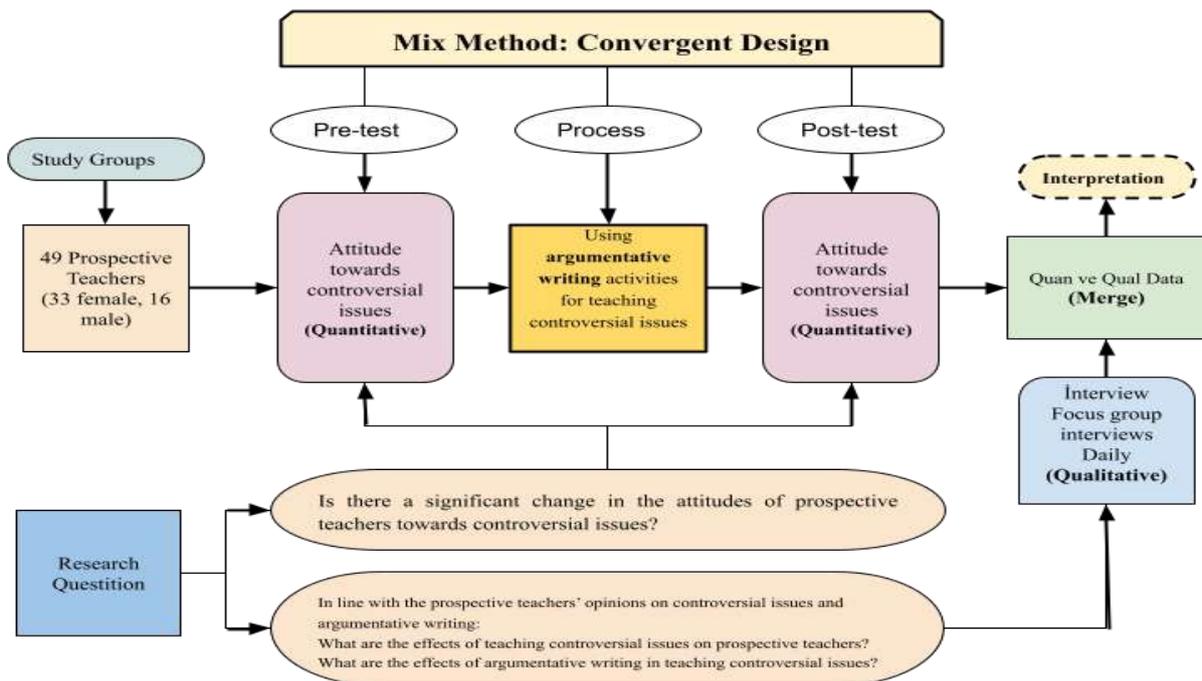


Figure 3. Research process

Sample

This study was conducted with a total of 49 prospective teachers (33 female; 16 male) studying Social Studies Teaching at a public university in the 2020/21 academic year. Since the research was conducted according to the convergent design, two basic issues were taken into consideration while determining the sample groups. The first of these is *to collect data from different groups in the event that the aim is to compare the perspectives of different groups, and the second is to collect data from the same individuals if the aim is to verify the data collected in one way (quantitative or qualitative) in another way* (Creswell, 2017). Since this study sought the latter case, the quantitative and qualitative data were collected from the same sample group, all of whom (49 prospective teachers) participated in the diary activity, 18 in the semi-structured interviews after being selected from the sample, and 10 in the focus group interviews. The level of argumentative writing of the prospective teachers (weak, moderate, strong) was taken into account when selecting the individuals to be interviewed in the semi-structured interviews and the focus groups.

Data Collection Tools

Attitude Scale Towards Controversial Issues (ASTCI)

We employed the *Attitude Scale Towards Controversial Issues (ASTCI)*, developed by Alagöz (2014), to determine prospective teachers' attitudes towards controversial issues. Consisting of a total of 34 items and 6 sub-dimensions (Discussion and viewpoints regarding controversial issues, the right to discuss and questioning, professional achievement, attitude towards discussion, attitude towards questions and problems, and a teacher's ability to choose a method), the scale was graded as a 5-point Likert scale, whose internal consistency reliability coefficient was found .93, while the Cronbach Alpha internal consistency reliability coefficient for the research was found .91. The attitude scale towards controversial issues was administered to the respondents through the Google forms during the distance education.

Semi-Structured Interview Form

The researchers prepared a semi-structured interview form so that the application process could be evaluated by the respondents. Since the study was carried out during the distance education in the pandemic, the interviews were conducted over a digital platform. In line with the prepared interview form, interviews were held with 18 prospective teachers. The respondents were informed that the interviews would be used only for research purposes. Their identity information would be kept confidential. They would be given codes instead of using their names (e.g., PT.1,.....,PT.18).

Focus Group Interviews

The focus group interviews were held with 10 prospective teachers to evaluate the implementation process. Since the study was conducted during the distance education period amid the pandemic, the interviews were carried out on a digital platform. The respondents were informed that the interviews would only be used for research purposes, their identities would be kept confidential and codes be used instead of their names (PT.19,.....,PT.28).

Diaries

All of the respondents were asked to keep a diary to determine their individual evaluations regarding the implementation process after each activity. They were also asked to send the diaries they prepared to the researchers via e-mail. Those diaries were given codes (PT.1,.....,PT.49).

Ethical Board Approval

Atatürk University, Educational Sciences Ethics Committee, dated 21/10/2021 with decision number 22, took this research's rationale, purpose, approach, and methods into account, and unanimously decided that there is no ethical and scientific inconvenience to the conduct of the study on the subject reported.

Implementation Process

In order to reveal the impact of argumentative writing on the way controversial issues were taught, a 4-week implementation was carried out with prospective teachers within the distance education period during the pandemic. Before starting the implementation, the respondents were informed about argumentative writing and

explained what needs to be done in the process. Then, a controversial issue was discussed each week and argumentative writing activities were conducted with the prospective teachers. Considering the learning areas in the social studies curriculum (MoNE, 2018), while determining the controversial issues, utmost attention was paid to the selection of issues related to the acquisitions (See Appendix -1). Table 1 presents the learning areas, accomplishments, and controversial issues discussed in the implementation process.

Table 1. Learning areas, accomplishments, and controversial issues

Learning areas	Accomplishments	Controversial issues
Science, Technology and Society	SB.4.4.2. Comparing the past and present uses of technological products. SB.5.4.1. Examining the impact of technology use on socialization and social relations.	Is technology helpful or harmful?
Production, Distribution and Consumption	SB.6.5.2. Analysing the impact of unmindful consumption of resources on lives of living beings; emphasizing the importance of renewable and non-renewable resources.	Is nuclear energy a disaster or salvation?
People, Places and Environments	SB.7.3.3. Discussing the causes and consequences of migration through case studies.	I would participate in the brain migration, I would not participate in the brain migration
Active Citizenship	SB.6.6.1. Comparing different forms of government in relation to the basic principles of democracy.	What do you think is the best form of government?

Figure 4 presents the argumentative writing activities used for teaching controversial issues during the implementation.

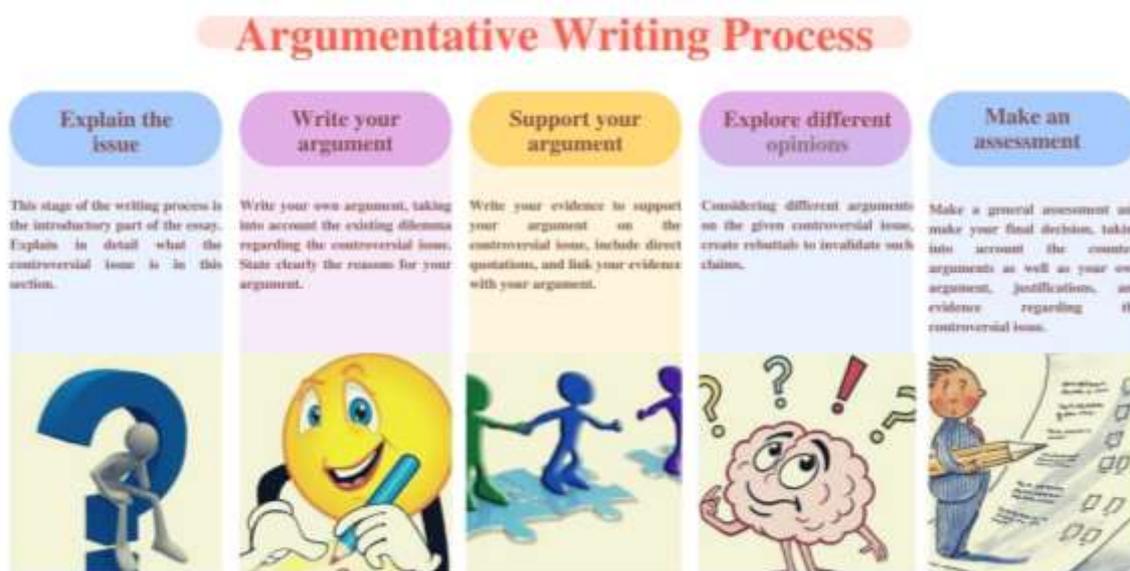


Figure 4. Argumentative writing process

Data Analysis

The quantitative and qualitative data set was organized before the data analysis. Normality analysis was first performed on the quantitative data. The histogram, normal Q-Q plot, detrended normal Q-Q plot graph, kurtosis and skewness values were examined to see whether the data showed a normal distribution (Tabachnick & Fidell, 2015; Pallant, 2005). Since the quantitative data showed a normal distribution ($p > 0.05$; $p = .200$), the Paired Samples t-test, was used to analyze the quantitative data to calculate the effect size value. The eta-squared value is normally between 0.00 and 1.00, and considered as an effect size when it is between 0.01-0.06 (small), 0.06-0.14 (medium), 0.14 and above (large) (Green & Salkind, 2005; Pallant, 2005; Can, 2017). In our study, these values were taken into account to calculate the effect size. Qualitative data were analyzed by content analysis and descriptive analysis. In addition, the MAXQDA 2020 qualitative data analysis program was used to analyze semi-structured interviews. Then, the results obtained from the semi-structured interviews were supported by those obtained from the focus group interviews and diaries.

Validity and Reliability

The reliability coefficient was calculated by making a pilot process for the internal consistency reliability of the ASTCI used in the quantitative dimension of the study. Expert opinion was sought for the reliability of the data used in the qualitative dimension to calculate the reliability coefficient [(Reliability = number of agreements / (total number of agreements + number of disagreements)]. The reliability coefficient is desired to be 90% (Miles & Huberman, 2016). In this study, the reliability was calculated as 95%. Participant verification/confirmation is important in ensuring qualitative data's internal validity or credibility (Merriam, 2013).

Moreover, data diversity can be used in terms of the credibility of qualitative data (Yıldırım & Şimşek, 2016). In this sense, after the coding analysis of the qualitative data, the analysis results were sent to the prospective teachers from whom the qualitative data were obtained to collect the participants' opinions about the accuracy of the analysis results. In addition to that, data diversity (semi-structured interview, focus group interview and diary) was ensured for the credibility of the qualitative data. Direct quotations from different participants were included as well.

Results

This section first presents the quantitative results accounting for the attitudes of prospective Social Studies teachers towards controversial issues. Then, the qualitative results based on the respondents' opinions regarding the controversial issues and the argumentative writing process are included. In the last stage, quantitative and qualitative results are combined and interpreted.

Quantitative results

To determine the impact of the argumentative writing process on the attitudes of prospective teachers towards controversial issues, the Attitude Scale Towards Controversial Issues (ASTCI) was administered as a pre-test and post-test. Descriptive statistics of the data obtained from ASTCI and Paired Samples t-test results are presented in Table 2.

Table 2. Descriptive Statistics of Scores Obtained from Pre-Test and Post-Test Data of ASTCI and Paired Samples t-Test Results

ASTCI	N	\bar{X}	Ss	Sd	t	p
Pre-test	49	139.91	18.01			
Post-test	49	157.36	12.82	48	-6.269	.000

As shown in Table 2, the post-test mean score ($\bar{X} = 157.36$) of the prospective teachers' attitudes towards controversial issues is higher than the pre-test mean score ($\bar{X} = 139.91$). Paired Samples t-test was performed to determine whether the mean difference was statistically significant. Table 2 shows that there is a statistically significant difference between pre-test and post-test scores of the respondents' attitudes towards controversial issues ($t_{(48)} = -6.269$, $p < .05$). The effect size value calculated from the analysis was $d = 0.90$, indicating a large effect. In other words, using the method of argumentative writing led to a statistically significant difference in the prospective teachers' attitudes towards controversial issues.

Qualitative Results

This section first presents the results obtained with the semi-structured interview forms. Later, the results are supported on the basis of the focus group interviews and prospective teachers' diaries.

The respondents were asked, "What kind of contribution do you think it could make to students when controversial issues are included in the Social Studies lesson?". Figure 5 presents the MAX Maps Code Co-occurrence Model of the findings based on the opinions of the respondents regarding the impact of controversial issues on students.

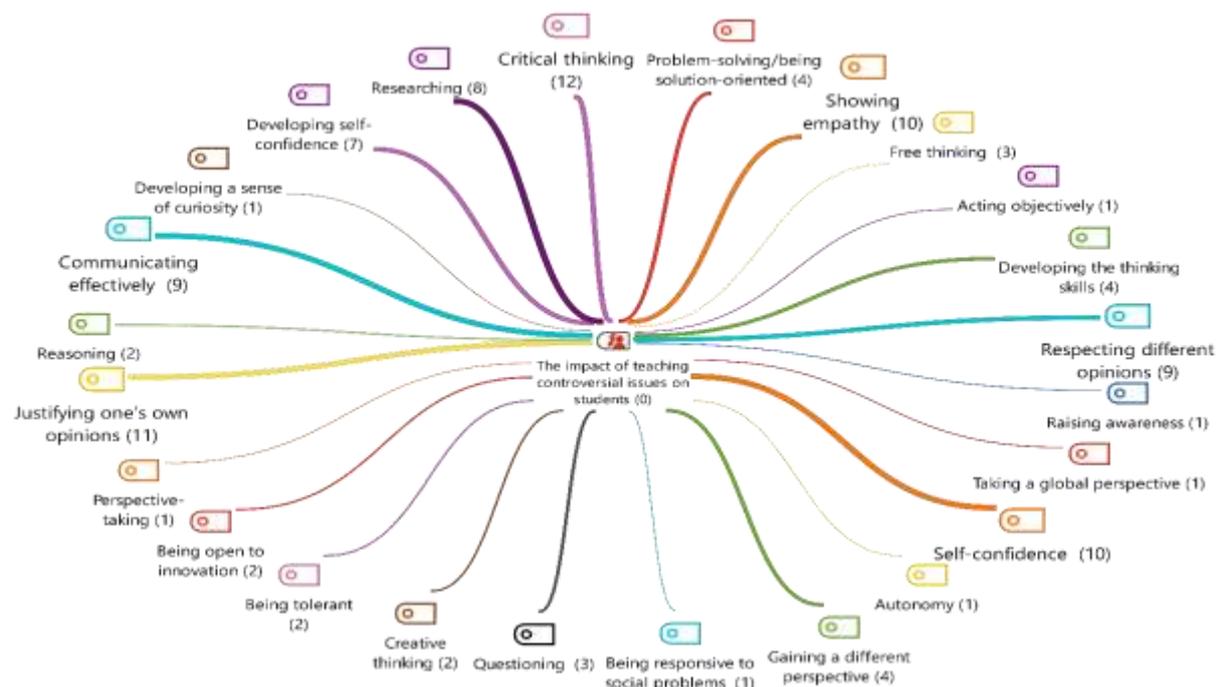


Figure 5. MAX Maps code co-occurrence model on the impact of using controversial issues

As shown in Figure 5, prospective Social Studies teachers made comprehensive evaluations of the impact of teaching controversial issues on students. As an example of the respondents' statements regarding these evaluations, PT.6 (he) said that being engaged with controversial issues "...supports children's creative and critical thinking skills. In line with the dilemma, children express themselves by justifying the view that appeals to them, making criticism and expressing their thoughts on the subject. As a result, since students express themselves more by speaking, it affects their communication skills positively. In addition, it teaches to overcome the problems encountered by identifying the controversial issues learned in the lesson with daily life. It also encourages children to make discoveries by leading them to research so that they can defend their own thoughts, thereby increasing their self-confidence." Just like PT.6, which highlighted the impact of controversial issues on students from different aspects, another respondent PT.19 (she), who had recorded the process of teaching controversial issues, stated: "When we came to the second week, I saw exactly that controversial issues are one of the main contexts of social studies teaching. When discussing controversial issues, I found it important to argue, think critically, and teach such issues without bias." He emphasized that the inclusion of controversial issues in social studies classes is effective in developing higher-order thinking skills in students. As can be seen in the diary of PT.19, such opinions became more visible and solidly based with the statement of PT.2 on controversial issues, "I think students' inclination to research and question will increase and they will be able to respect different feelings and support their thoughts with evidence." According to PT.18 (she), controversial issues comprised in Social Studies teaching "firstly enable students to base their knowledge on solid foundations by filtering their own views, to respect the opinions of others, and to be tolerant. It gives a sense of independence and autonomy as they can freely justify their ideas while discussing. It also helps students contemplate and allows them to identify and analyse their own thoughts as well as others", while for PT.4, controversial issues are the key to both thinking and respecting different ideas and learning by doing, and "develop students' sense of empathy in the first place. Once they have realized that the opinion which they defend is not the only correct one, they learn to respect the opinions of others. At the same time, seeing their own mistakes through their own research is the most solid way of learning, making them never forget it again." The statements made by PT.4 also support the views of PT.22 (he), who explained his ideas on controversial issues in the focus group meeting, and said, "Students makes a claim about the subject and conducts research to support it. They also see that there are different opinions other than theirs due to the rebuttals. This, in turn, develops the sense of empathy." Making an assessment similar to that of PT.22, PT.9 (she) said that controversial issues, "first of all, help individuals to self-respect. Every individual at any age wants to discuss about something. Well, let's look at controversial issues more professionally: When someone analyses and writes about evidence, rebuttals, claims, etc., we must make sure that he learns the following: Yes, I think so, but not because I said so. I strengthen my claim by basing this on certain reasons and certain evidence. Here, I think people learn to stand by their word and to express their thoughts without fear, but the best part of controversial issues is that there is never a bigoted and blind defence. I think so,

but there are those who think the opposite of me. That person is now disguising himself as a completely different identity and indicating the opposing idea. Here, he witnesses the best dimension of empathy." When the views of both PT.9, PT.22 and PT.4 were brought together, they referred to a common point in the development of their ability to think multi-dimensionally, justify their thoughts, and be open to different ideas, as well as defend their own thoughts. Furthermore, the development of respect for different ideas and of empathy skills, as mentioned by many respondents, are clearly included in the diary of PT.40 (he), who had kept a diary about the teaching process of controversial issues, and said in his diary that, "...even though I had difficulties in the process of writing on these topics, this process improved my ability to empathize and respect opposing opinions." The reason given by PT.5 (them) for this development is that exposure to controversial issues "dispels students' misconceptions about such issues, helps them learn through action and experience (because students do their own research), and develops self-confidence and self-expression as they defend their views. They make a habit of respecting opposing views and develop their discussion skills," statements that echo those of PT.40.

PT.25 (he) emphasized in the focus group interview that students could understand that it is not only their own thoughts which are correct while learning about the controversial issues and argumentative writing, and said, "With controversial issues, students can look at the existing issue from both sides and get scientific support by doing research. During this research process, the subject learned by the students become more permanent as they actively take part, or they will never forget it. Personally, my friends and I will not forget these issues. I think it will be the same in elementary or middle school." Drawing attention to the importance of controversial issues like PT.25, PT.11 (she) wrote the following in her diary in the last week, "For four weeks we focused on controversial issues. I realized how important it is to teach controversial issues in the Social Studies course during that time. In the end, I learned that I need to be a teacher who incorporates controversial issues into the course, views them as richness, and believes that controversial issues are effective in developing individuals' decision-making skills and ability to use evidence," a statement that summarizes an optimal teaching process by emphasizing the need to include controversial issues in social studies classes and the importance of the teacher's role in teaching such issues. The verbal and written expressions of prospective Social Studies teachers revealed the impact of teaching controversial issues on students. However, the question of the role of argumentative writing while teaching such issues is as important as the existing effects. In this context, the participants were asked what they thought about the impact of argumentative writing in teaching controversial issues. Figure 6 shows the MAX Maps Code Co-occurrence Model of the findings based on the respondents' views regarding the role of argumentative writing in teaching controversial issues.

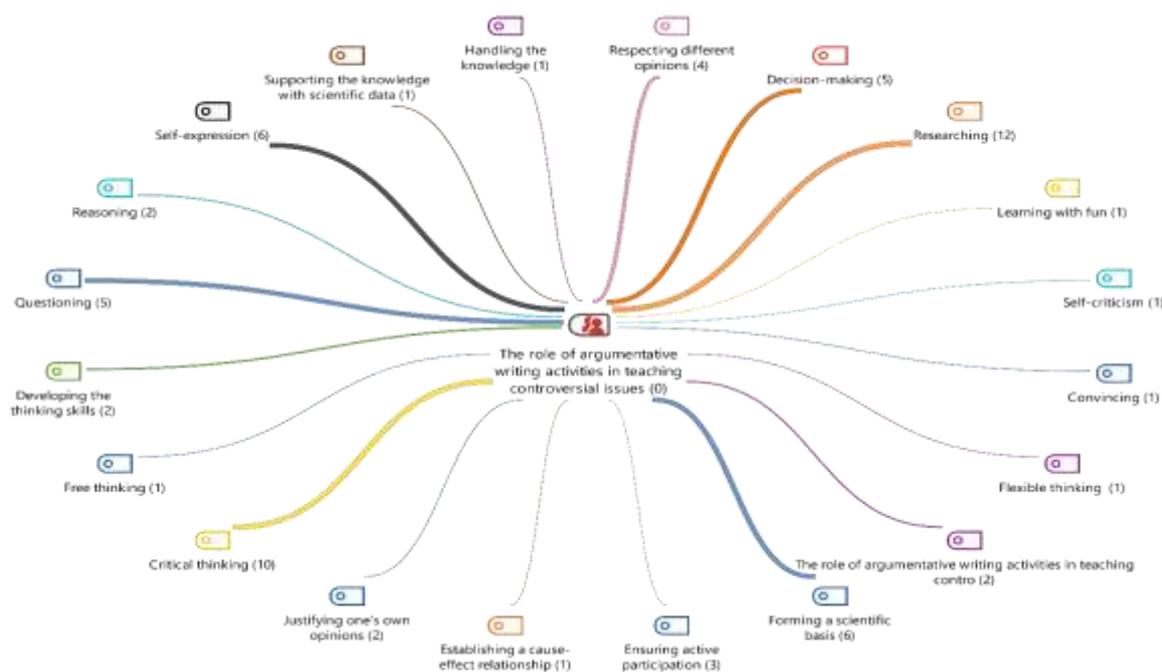


Figure 6. MAX Maps code co-occurrence model for the impact of argumentative writing

As shown in Figure 6, prospective Social Studies teachers made multidimensional evaluations about the role of argumentative writing activities used in teaching controversial issues. In this regard, PT.3 (he) said, "I think

argumentative writing plays a crucial role in teaching controversial topics and is very effective, whether it is doing research and getting the right information with evidence, or being able to find the opposing view and refute it with evidence. *This is because arguing with evidence in a reasonable way increases self-confidence. When it comes to refuting, the sense of empathy appears too. Argumentative writing can change the mind of an opposing person on controversial issues with evidence and rebuttals. I even changed my mind sometimes due to the results and sometimes to evidence I found while doing research.*"

Some other prospective teachers also stressed the components of this comprehensive evaluation of PT.3 on argumentative writing. As an example of evaluating the role of argumentative writing in teaching controversial issues, PT.19 raised some points similar to those of PT.3 in the focus group interview, saying, "Before I saw the argumentative writing model, I only knew the debate method, which is based on defending an issue from only one perspective. *However, with this writing model, it is necessary first to answer the question of why I am defending this and to put forward the claim. Then I make a claim, but I have to prove it. For that, I need particular evidence. Writing also triggers the need for some research to refute the other party's view. Thus, people deal with the issue not one-dimensionally, but multi dimensionally. Apart from this, we make an objective evaluation in a more general sense, not a subjective evaluation, by making evaluations again*", indicating her support of the statements made by PT.3 and pointed out different aspects of argumentative writing. Just like PT.19, PT.8 (she) pointed out that argumentative writing is an important alternative for students who are shy in the classroom and do not dare to speak and express their thoughts, and she said: "*Individuals or students who fail to express themselves verbally in front of the public are not likely to actively participate in the discussion. Therefore, learning cannot be fulfilled. In argumentative writing, however, students who are more introverted and have difficulty expressing themselves will be able to participate in a discussion by writing. They will be able to easily support a claim through research after expressing their opinions on controversial issues by writing. For this reason, all students can participate effectively when argumentative writing activities are included in the process of teaching controversial issues.*" This judgment of PT.8 regarding the role of argumentative writing integrated into learning environments is noteworthy since she stated that students (classmates) who have difficulty in verbalizing their feelings and thoughts based on their own experience and observation are more easily involved in learning processes through argumentative writing. Making comments on argumentative writing in the focus group interview, PT.24 (he) said, "*Before I talk about what I have gained through controversial issues, I would like to say that we have stereotypes and prejudices. Such issues and especially the part of the argumentative writing we used as rebuttal impacted me. I saw that many things that I thought were true could actually be different. I think this helped me to eliminate stereotypes and prejudices...*", pointing to the role of argumentative writing that created a significant change in him. Just like PT.24, who emphasizes the negative consequences of stereotypes and prejudices, PT.32 (she) mentions the following opinions in her diary: "...as our teacher said, people are hostile to what they do not know. The purpose of education is to reduce what we do not know. Controversial issues and argumentative writing have taught me that". Both PT.24 and PT.32 drew attention to the effect of argumentative writing in eliminating stereotypes and prejudices that pose an obstacle for free thinking, which is a prerequisite for controversial issues. Similarly, PT.47 (she) wrote in her diary as follows: "*Dear diary, ... I know, chaos comes to your mind when you think of argumentation, but it's not like that at all... With argumentative writing, you can both discuss these issues and express your thoughts freely,*" pointing to an awareness of stereotypes attributed to the concept of argumentation and emphasizing the role of argumentative writing in that awareness. PT.16 (she) added, "*I can say that I have learned to argue effectively thanks to argumentative writing activities. I can also say that I have learned to make a logical defence by justifying my own view within the framework of logic and listening to and taking into account the opposing view without fighting. In fact, apart from the one we defend from among controversial issues, we also get to know about two issues at the same time by researching the other party's issue thoroughly. Thanks to the argumentative writing activity, I learned to find and refute the opposing views and to base my evidence on more solid grounds.*" The positive attitude of PT.16 toward the process of argumentative writing that she mentioned in the focus group interview can also be seen in the following statements of PT.27 (er): "*The argumentative writing activities have changed my perspective on teaching controversial issues in the following ways: Doing thorough research on the claim I was defending to get the necessary justifications for the correctness of my claim, some supporting ideas, as well as data that would refute the other party's opinion, gave me a sense of responsibility for the opinion I was seriously advocating.*" In a similar vein, PT.14 said that argumentative writing "*encourages students and people to think scientifically. It teaches how to collect and evaluate data using scientific thinking steps. Argumentative writing teaches how to make step-by-step progress on controversial issues,*" drawing attention to the fact that argumentative writing builds on scientific thinking processes and asking the following question, "*The most important role of argumentative writing is related to the questions of how argumentative writing scientifically supports the view we hold and how to refute the other party's arguments using evidence e.*"

Taking a different stance on argumentative writing used for teaching controversial issues, PT.11 said: *“To me, the most important aspect of these writing activities in teaching controversial issues is that they provide mutual teaching. Just as the student learns from the teacher, the teacher can learn from the students. With this method, all students could actively be involved in the process”*, emphasizing the learner-centred aspect of argumentative writing. PT.28 (she), who also approached the learner-centred aspect of argumentative writing through her own experiences, said the following in the focus group interview, *“The argumentative writing model has contributed a lot to me in a positive sense. First of all, it helped me about the matters of research and analysis, and made me realize the fact that there are different views. Analysing the views, especially blending the information and revealing new things, developed me personally.”* As PT.28 mentioned, PT.40, who discussed the effects of argumentative writing through his development process, wrote the following in his diary: *“Argumentative writing has improved my respect for opposing ideas. Moreover, I learned to do research in more detail”*. As a matter of fact, saying that, *“I think argumentative writing could be used very efficiently in the classroom environment. In crowded classrooms, I believe it is a very suitable way for students to express themselves by writing”*, is also notable in terms of spreading the use of argumentative writing in learning environments.

Discussion, Conclusion and Recommendations

This study examined the impact of argumentative writing on teaching controversial issues within the Social Studies education. Both quantitative and qualitative data were used for the purpose of reaching a conclusion. Figure 7 presents the results based on merging the quantitative and qualitative data.

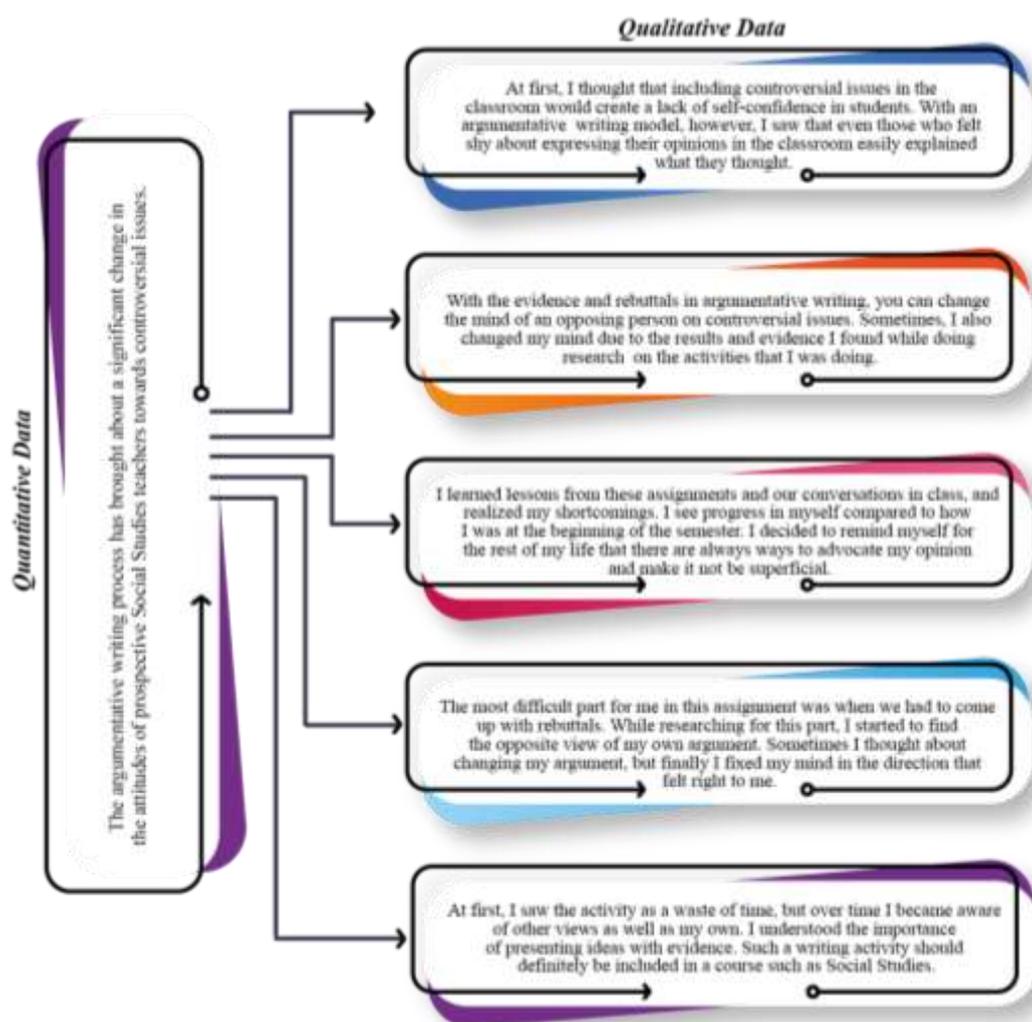


Figure 7. Combination of quantitative and qualitative data

As seen in Figure 7, both quantitative and qualitative results show that there has been a positive change in the attitudes of prospective Social Studies teachers towards controversial issues. Although the prospective teachers

faced with controversial issues experienced a sense of uncertainty at first, the nature of such issues have attracted their attention over time. In this context, expected improvement in attitudes can be achieved when the source of uncertainty regarding the teaching of controversial issues is eliminated. Such positive improvement was achieved in this study, just like it was in many different studies in the literature. Approaching controversial issues with reference to prospective teachers' readiness and motivation levels, Nganga et al. (2020) stated that the vast majority of prospective teachers received no training on such issues their perspectives on controversial issues changed after a relevant training. Similarly, Avaroğulları (2015) emphasized that the biggest difficulty in handling controversial issues is that teachers do not have the necessary knowledge about how to teach them. There seems to be a change in teachers' attitudes towards controversial issues after using it. There seems to be a change in teachers' attitudes towards controversial issues after using it various teaching methods for controversial issues. The influence of argumentative writing is undeniable in that it directly or indirectly draws prospective teachers to the focus of controversial issues in this study, which contributes to this change from its own angle. The reason is that argumentative writing involves not only the structural process of words, phrases, and sentences, but also a complex process that requires us to understand the topic, improve expressions, correlatively edit, and put ideas into writing (Pei et al., 2017). It should be noted that debating is a good way to gain understanding about a particular issue (Ellis, 2007). In fact, democratic societies need individuals who are skilled in debating (Dingler, 2017). Although not the only form of discussion, argumentative writing is one type of writing that comes to the fore in classrooms where argumentative logic should be taught (Olsen et al., 2017). In this way, it is ensured that students gain knowledge by participating in the problem solving and reasoning processes necessary for learning via discussion or gaining such a point of view (Kiuahara et al., 2020). In addition to this study, both Nganga et al. (2020) and Avaroğulları (2015), seemed to agree to the point that the perspective on controversial issues can change as long as appropriate learning environments are provided. The direction of this change must be shifted from certain teacher models such as those who want to "privilege" (Hess, 2005) an opinion on a subject and impose it on students and those adopting the approach of "exclusive neutrality" (Kelly, 1996), based on ignoring students' questions and controversial issues, and avoiding such situations, towards such teacher models as those with "risk-taking" (Kitson & McCully, 2005) attitude, who care about controversial issues and focus on them with various methods and techniques. The reason for this is that risk-taking teachers will be capable of shaping many skills necessary for the 21st century through teaching controversial issues (Öntaş et al., 2021).

The inclusion of controversial issues in a planned and programmed way in a classroom environment provides important educational gains (Yazıcı & Seçgin, 2010), as clearly indicated in our study. The prospective social studies teachers interviewed, speaking from their own experiences about the pedagogical gains resulting from exposure to controversial issues, explained that such issues have multidimensional effects, i.e., developing a sense of curiosity, respect for other opinions, critical thinking, problem solving, and reasoning, as well as securing self-confidence. This result seems to have parallel features with the results of many research studies conducted in the literature (Baki-Pala, 2020; Baloğlu-Uğurlu & Doğan, 2016; Cannard, 2005; Çepni & Geçit, 2020; Dearden, 1981; Demircioğlu, 2016; Ersoy, 2013; Harwood & Hahn, 1990; Hess, 2005; Tunç-Şahin, 2021). Given the causes of the desired outcome, it appears that using argumentative writing as a problem-solving process that requires self-regulation to achieve a persuasive goal is an important supporting factor (Graham & Harris, 1997). This is because the nature of controversial issues requires higher-order thinking skills. As an essential tool to reveal these skills, argumentative writing offers students a more qualified learning experience by providing opportunities such as thinking, reasoning, and focusing on the subject (Chen, Benus & Hernandez, 2019). In this regard, Murtadho (2021) states that practices grounded on metacognition and critical thinking affect students' argumentative writing skills. From this standpoint, it can be assumed that controversial issues built on higher-order thinking skills are also effective in developing students' argumentative writing skills.

As an example of research showing the impact of controversial issues on learners, Pace (2021) has studied the nature of controversial issues, and stated that students should research on controversial issues, master the concepts on both sides of an issue, and develop their perspective, and that examining such issues enables to make a critical analysis of sources, discuss different perspectives, and adopt a standpoint by elaborating on important questions. Since such practice motivates students to do research from reliable sources (Setyowati et al., 2017), it also supports the purpose of argumentative writing, which is a source of inspiration for students in order for them to develop their knowledge and construct arguments upon collecting, combining, and evaluating evidence (Murtadho, 2021). Similarly, Lockwood (1996) found that controversial issues can allow students to gain perspectives and knowledge in areas such as developing a democratic viewpoint, listening to and understanding opposing views, discovering and finding solutions to problems, evaluating multiple views and understanding different perspectives, and applying what they learn more effectively. Strauss and Westlund (2005), who approached controversial issues from a different perspective, emphasized that exposure of students to various perspectives while handling controversial issues can provide an opportunity for the development of their social, moral and

cultural attitudes and skills. Misco (2012), on the other hand, pointed out that being engaged in controversial issues increases one's interest in current events, social sciences and social issues, thereby developing tolerance. Moreover, presenting such topics in appropriate learning environments by relating them to real life when teaching controversial topics (Çopur & Demirel, 2016) provides students with the ability to acquire, evaluate, and question knowledge (Stradling, 1984), the ability to think critically and make decisions (Abu-Hamdar & Khader, 2014), the development of attitudes and behaviours based on respect between individuals (Öntaş et al., 2021), and the acquisition of a culture of coexistence (Deniz, 2018). Considering the available research on controversial issues and this study as a whole, it is found that controversial issues play a crucial role in students developing higher order thinking skills and acquiring knowledge. Furthermore, the relevant literature and this study agree that controversial issues play a key role in overcoming both individual and societal problems.

Given the nature of controversial issues, the effective aspects of argumentative writing, and the findings and results of the present study, a number of suggestions can be listed:

- Educators who want to create a democratic classroom climate through controversial issues can integrate argumentative writing into their lessons.
- The sample of this study consists of prospective social studies teachers. Further studies could be conducted with other sample groups.
- This study focused on brain migration, technology, nuclear energy, and different styles of government. In future research, similar studies can be conducted on different controversial topics.

Author (s) Contribution Rate

The authors contributed equally at all stages of the research.

Conflicts of Interest

The authors declared no potential conflicts of interest regarding the research, authorship or publication on this article.

Ethical Approval

Ethical permission 21/10/2021- 22 was obtained from Atatürk University Educational Sciences Ethics Committee for this research.

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Appendix 1. A Sample Work of the Student



The image shows two pages of handwritten text in German, discussing nuclear energy. Five blue callout boxes with white text provide analysis of the handwriting. The callouts are numbered 1 through 5. The handwriting is in a cursive style, typical of the early 20th century. The text on the pages is dense and covers most of the page area. The callouts are positioned around the pages, pointing to specific lines of text.

1. By doing researchs on the subject of nuclear energy, they were able to accurately present the subject in general.

2. They were able to clearly present their justifications and ideas about nuclear energy.

3. By explaining the reasons that could support their justifications on nuclear energy, they were able to support them with proper evidence and data (statistical information, related reports, and scientific articles, etc.).

4. They put forward views on the subject of nuclear energy, trying to refute why those ideas were not true based on relevant

5. They made a general assessment on nuclear energy, taking into account their own and different (opposing) views.