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Feeling Politics at High School: Antecedents and Effects of Emotions in Civic Education

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Studies on voters have shown that emotions are an important factor in politics. However, less is known about emotions experienced by adolescents in the context of civic education. Applying the control-value theory to a cross-curricular context, we analyze the relations between two types of emotions experienced in civic education and their antecedents and effects on learning: achievement emotions experienced during in-class political discussions and epistemic emotions experienced during individual processing of political information in school. We hypothesized both types of emotions relate to control and value appraisal antecedents (e.g., internal political efficacy, personal importance). Further, we expected—depending on the specific emotion—positive or negative relations with academic outcomes (e.g., motivation, engagement, and knowledge). Data were collected with an online questionnaire in Austrian upper secondary schools with students ($N = 594$, $M_{age} = 17.1$) from grades 10 to 13. Bivariate latent correlations broadly support the expectations: We found mainly positive associations of antecedents and outcomes to enjoyment, hope, pride, curiosity, and surprise and negative associations to hopelessness, confusion, and boredom, but more complex correlation patterns for anxiety, anger, and shame. The results provide first insights into which emotions are experienced during political learning and underscore the importance of acknowledging the role of emotions in civic education.

KEY WORDS: achievement emotions, epistemic emotions, control-value theory, political discussions, civic education, political learning

Emotions are omnipresent in many political contexts, from heated debates in parliament, billboards during election campaigns designed to elicit emotional reactions, or emotional expression of protestors on a street. In the last 30 years, research from political psychology has

stressed the importance of emotions for informal political learning (Brader & Marcus, 2013), such as enhanced attention due to enthusiasm and anxiety (Marcus et al., 2000). However, these studies have rarely addressed the role of emotions in the context of civic education among students at school. Although theoretical literature on civic education acknowledges the importance of emotions, we know relatively little on which emotions are experienced in this context, what their antecedents are, and whether and how they are related to learning processes.

This contrasts sharply with extensive research on antecedents and effects of emotions in other academic domains (e.g., mathematics, language learning; Camacho-Morles et al., 2021). Emotions experienced in educational environments impact not only learning motivation and achievement (Pekrun et al., 2011) but also students' career aspirations (Schuster & Martiny, 2017). They are a major component in shaping the learning process. It is unclear whether findings in these domains also apply to the domain of civic education. Civic education is often taught as a cross-curricular subject, where topics of political and social relevance are integrated into teaching of other subjects (Losito et al., 2021; Schulz et al., 2018) such as language learning or history (Hämmerle et al., 2009). Goals of civic education include developing knowledge and understanding of civic skills, values, identity, and participation (Carretero et al., 2016). In order to study the role emotions play in civic education, it is crucial to first identify when and how civic education takes place at school and then develop corresponding measures to assess emotions in this context.

In this study, we assessed emotions experienced by adolescents in cross-curricular civic education contexts and analyzed their relations to antecedents and academic outcomes. In doing so, we examine whether control-value theory can be applied to civic education. We focused on adolescents in upper secondary schools because most adolescents gain political rights, like the eligibility to vote, during this time. Additionally, late adolescence is often cited as a critical period in political socialization (Sears & Brown, 2013) and an important time to explore one's civic identity (Crocetti et al., 2012). Experiencing emotions in civic education can help to attract students' attention to the civic domain and promote civic engagement but may also act as a barrier. Knowing about antecedents and outcomes of emotions can assist educators to create settings for civic education that integrate students' emotions to foster civic engagement.

Learning About Political and Social Issues Inside and Outside School

Learning about politics is often informal (Losito et al., 2021). Discussions with parents, for example, which are sometimes highly emotional and controversial, provide information about political and social issues (Schulz et al., 2018). Voters learn about current events through interactions with peers and the media, and several studies have found that emotions play a critical role for information seeking, media attention, and discussions (e.g., Huddy et al., 2007; Just et al., 2007; Marcus et al., 2000; Otto et al., 2020; Park, 2015). Surprisingly, the role of emotions in adolescent political learning—and particularly civic learning in schools—has received little attention (Barrett et al., 2019).

One intriguing exception is a study by Bayram Özdemir et al. (2016), who discovered that the relation between students' perceptions of engaged teaching about politics and their own initiation of political discussions is mediated by their feelings about politics. Furthermore, philosophical and qualitative approaches frequently emphasized the significance of emotions in civic education (Garrett, 2020; Keegan, 2021; Knight Abowitz & Mamlok, 2019). Emotions are essential to drive political action, hence they are central to Keegan's (2021) model on critical affective civic literacy. Since civic education should allow students to learn about emotions and

how they are used in politics, theories on how emotions function in civic education are desperately needed.

Because of its diverse forms of implementation, civic education is an exciting and unique subject for psychological research. A popular approach in Austria and around the world is integrating civic matters in all other subjects (i.e., cross-curricular; Schulz et al., 2018). According to the International Civic and Citizenship Education Study (ICCS), this approach is common in 18 of the 24 participating countries' schools (e.g., Belgium, Chile, Croatia; Schulz et al., 2018). Although the integrated approach enables teachers to connect political topics to various disciplines, it challenges civic education researchers to identify situations in which students are learning about political and social issues at school.

We consider two different situations of cross-curricular civic education, in which emotions are likely experienced: (1) discussions (Campbell, 2008; Kahne et al., 2013; Losito et al., 2021) and (2) information processing about political and social issues (e.g., studying textbooks; Schulz et al., 2018). Both are among the most commonly used methods when teaching civic education (Schulz et al., 2018). Discussions can differ greatly in their emotional dynamics and can get very heated and tense (Garrett, 2020), and relations of discrete emotions in this context and their antecedents and effects are yet to be studied. Beyond information garnered from textbooks, other information sources like newspaper articles about political and social issues are likely used in a cross-curricular civic education context. For example, students might be asked to write a comment in response to an article on a recent policy in their language class. Depending on the cognitive quality of the task and the information processed, emotions are likely experienced (Muis, Pekrun, et al., 2015).

Academic Emotions

Pekrun and Loderer (2020) distinguish between four groups of emotions typically experienced in achievement settings, which differ in their object focus: achievement, epistemic, topic, and social emotions. In this study, we focus on achievement and epistemic emotions, as they directly pertain to learning (Pekrun & Perry, 2014).

Achievement emotions occur in achievement settings (e.g., taking classes, learning, or test taking). More specifically, they are directed at achievement outcomes and can be either prospective (e.g., hope, anxiety), retrospective (e.g., pride, shame), or related to the activity itself (e.g., enjoyment, boredom; Pekrun, 2006). As described earlier, discussing political and social issues during regular classes are an important activity of cross-curriculum civic education (e.g., Campbell, 2008; Dassonneville et al., 2012). Given past findings of students experiencing and expressing emotions during discussions of social and political issues (e.g., Bayram Özdemir et al., 2016; Garrett, 2020), it seems likely that discrete activity emotions are experienced in these settings and contribute to further engagement with the topics.

Epistemic emotions focus on the knowledge-generating aspect of learning and can be experienced when being confronted with new, often controversial information (Muis, Sinatra, et al., 2018). Typical epistemic emotions include curiosity, surprise, and confusion, which often occur in the context of processing controversial scientific issues that challenge prior beliefs and therefore trigger emotions (Muis, Pekrun, et al., 2015). This has been shown in the case of reading conflicting texts about the causes and consequences of climate change (Muis, Pekrun, et al., 2015) and texts directly addressing one's misconceptions about genetically modified food (Muis, Sinatra, et al., 2018). Similarly, processing political information may conflict with individuals' attitudes, which can be experienced as threat or novelty and

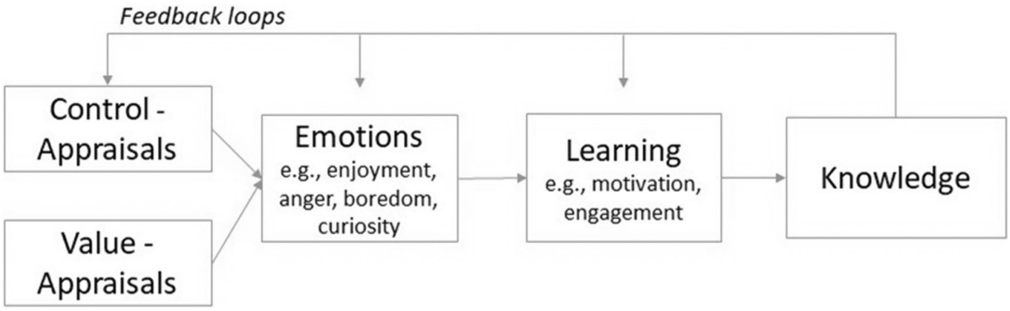

Figure 1. Theoretical mechanisms of the role of emotions in civic education based on control-value theory (adapted from Pekrun, 2006, p. 328).

activate attention and emotions (Redlawsk et al., 2007). Consider, for example, increased vigilance and curiosity at the start of the COVID pandemic, given novel and sometimes conflicting information about policies discussed to prevent spreading the virus. Another possible scenario could be at school, where students may be asked to write an argumentative essay about what individuals and states must change to combat the climate crisis. They may be surprised by new information discovered during their search, or they may be confused by inconsistent information.

Antecedents and Effects of Academic Emotions

A prominent theory explaining antecedents and effects of academic emotions is the control-value theory (Pekrun, 2006; Pekrun & Perry, 2014). Control-value theory assumes that appraisals of control and value act as proximal antecedents of discrete emotions, which in turn affect learning characteristics and outcomes (see Figure 1). While the theory implies a direction from antecedents to outcomes, it also includes recursive effects from outcomes to the preceding components (Pekrun, 2006). Further, the theory considers emotions as a multifaceted phenomenon, including affective, cognitive, motivational, physiological, and expressive components. Control-value theory has been applied to various academic domains such as mathematics (Bieg et al., 2017; Goetz et al., 2007), language learning (Goetz et al., 2007; Shao et al., 2020), and physical education (Simonton & Garn, 2019). It applies to both state (Bieg et al., 2017; Goetz et al., 2020) and trait (Pekrun et al., 2011) emotions. Even more support for the theory is provided from meta-analyses focusing on relations with achievement (Camacho-Morles et al., 2021) and specific learning environments (e.g., technology-based learning; Loderer et al., 2020).

However, research testing its application to political learning and to domains taught in a cross-curricular approach is lacking. For example, none of the 68 studies included in a recent meta-analysis examined emotions in the context of civic education, and only a few focused on social sciences in tertiary education (Camacho-Morles et al., 2021). Despite the domain-specific orientation of emotions (Goetz et al., 2007), the control-value theory proposes a relative universality of relations between antecedents, discrete emotions, and outcomes (Pekrun & Perry, 2014). As a result, we anticipate that patterns similar to those observed in other domains will emerge in civic education contexts.

Antecedents of Academic Emotions

According to the control-value theory, subjective appraisals of control and value are the main cognitive, proximal antecedents of emotions (Pekrun, 2006). Value appraisals are further classified as intrinsic value, value of success, and value of failure. The latter is concerned with anticipated failure, which is highly valued, and is frequently referred to as *negative value* (Pekrun & Perry, 2014). Relations have been shown for both achievement (Pekrun et al., 2011) and epistemic emotions (Di Leo et al., 2019). Students experience enjoyment, hope, and pride when they perceive a learning activity or outcome to be valuable and controllable. Anger, anxiety, shame, and hopelessness are associated with low control appraisals and negative value (Pekrun et al., 2011; Pekrun & Perry, 2014). Boredom, in contrast, is the only emotion which increases with decreasing value appraisals. Although in theory boredom is associated with low and high control (i.e., curvilinear relation), empirical findings from achievement settings usually reveal negative relations as high control is rarely experienced in this context (Pekrun et al., 2010). Regarding epistemic emotions, high-value appraisals correlate positively with curiosity, and negatively with confusion. Furthermore, appraisals of control negatively relate to confusion (Muis, Pekrun, et al., 2015), a relation that is dependent on the appraisal of value (Di Leo et al., 2019). Studies on surprise have found either no relation (Muis, Pekrun, et al., 2015) or a negative relation with control appraisals (Di Leo et al., 2019).

Effects of Academic Emotions

According to the control-value theory (Pekrun, 2006), the effects of emotions on learning and achievement are mediated by motivation, available cognitive resources, and learning strategies. While this core assumption concerns both types of emotions, epistemic emotions generally have positive effects on critical thinking, learning, and the use of meta-cognitive strategies (Chevrier et al., 2019; Di Leo et al., 2019; Muis, Chevrier, & Singh, 2018; Muis, Pekrun, et al., 2015), with only few studies showing a negative relation between confusion and learning (Muis, Pekrun, et al., 2015). For achievement emotions, differences pertain to the direction of the relations based on the dimensions of valence and activation. Positive-activating emotions typically promote learning. For example, enjoyment is related to motivation, use of elaboration as a learning strategy, self-regulated learning, and achievement (e.g., Camacho-Morles et al., 2021; Pekrun et al., 2002, 2011). Negative-deactivating emotions such as boredom and hopelessness distract from learning, affecting motivation, learning resources, and achievement (Camacho-Morles et al., 2021; Pekrun et al., 2002, 2010, 2011). The effects of negative-activating emotions on learning are less straightforward. Emotions like anger and anxiety can distract attention from learning by causing task-irrelevant thinking (Pekrun et al., 2002) as well as block intrinsic motivation, while increasing extrinsic motivation (Pekrun et al., 2011). Consistent with positive effects of negative emotions on learning, information seeking increases when anxiety is triggered in threatening political situations (Redlawsk et al., 2007; Valentino et al., 2008). Whether and how negative-activating emotions in civic education are related to various concepts of learning remains an open question and will be explored in this study.

The Present Study

This study aims to investigate how emotions experienced by adolescents during political learning relate to antecedents and learning processes and whether relations proposed by the control-value theory can be applied to the context of civic education. Currently, research on

emotions in civic education is lacking, although it seems particularly interesting given the high emotionality of many political topics and the cross-curricular implementation of the subject. First, we investigate how cognitive appraisals of control and value are related to achievement emotions experienced in the context of discussing political and social issues in class and epistemic political emotions experienced when processing information about political and social issues. Second, we inspect the relations of these emotions with learning processes and academic outcomes.

Hypotheses

We expect control and value appraisals to positively correlate with enjoyment, hope, pride, and curiosity and negatively correlate with boredom and confusion. For hopelessness, anger, anxiety, and shame, we expect a negative relation with control, but a positive relation to appraisals of negative value, (i.e., if failing is highly valued in a given context). In terms of outcomes, we hypothesize that positive-activating emotions (enjoyment, hope, and pride) and epistemic political emotions enhance learning. The opposite is expected regarding negative-deactivating emotions (boredom and hopelessness).[1]

Method

Participants and Procedure

Data were collected using an online questionnaire administered to students in grades 10 to 13 from three Austrian regions (Vienna, Lower Austria, and Upper Austria). Schools were randomly selected via a stratified sample for school type and region. From the initially selected schools ($N=68$), 12 took part in the data collection.[2] After approval from the university's ethical review board[3] and the regional educational agencies, students' and, if required, their parents' consent was obtained. Between April and June 2021, teachers sent a link to the online questionnaire to participating students, mainly providing the possibility to fill in the questionnaire during classes. On average, it took students 22 minutes to complete the questionnaire. Overall, 619 students from upper secondary schools participated. We excluded participants ($N=25$; 4%) based on a relative completion speed index to identify meaningless records (Leiner, 2019; for details, see the online supporting information, section 1).

The final sample included 594 students from 12 schools and 34 classes. The included schools last four to five years, and students are entitled to study at university upon graduation. Students in these schools are taught civic education in combination with other subjects and as a cross-curricular theme. The mean age of students is 17.1 ($SD=1.18$), with a range from 15 to 22 years. Table 1 displays detailed information about students' sociodemographic characteristics.

[1]These hypotheses were preregistered via OSF (H2-H6). Hypothesis 1 in the preregistration addresses measurement invariance of the scales, which was excluded from this study to keep the focus on the main topic of the manuscript. Hypothesis 3 in the preregistration refers to "negative-deactivating emotion" in general, but as outlined in the theory (section I1 of the preregistration), expectations regarding value-appraisals for hopelessness are similar to other emotions such as anger, anxiety, and shame.

[2]We also collected data at part-time vocational schools, who teach civic education as single subjects. Due to a small sample size and focus of this article, they were excluded from the analysis.

[3]Reference Number: 00624.

Table 1. Sociodemographic Characteristics Statistics of Participating Students

Sociodemographic Characteristics	*n*	%
Gender		
Male	143	24
Female	438	75
Gender diverse	4	1
School type		
AHS	256	43
BHS	338	57
Grade		
10th grade	178	30
11th grade	203	34
12th grade	180	30
13th grade	33	6
Residence		
Rural	376	65
Small town	91	16
Small city	55	9
Urban	26	4
Suburban	33	6
Language spoken at home		
Non-German	13	2
German	569	98
Migration background		
At least one parent born in Austria	522	90
Students born in country, but parent(s) born abroad	34	6
Students and parent(s) born abroad	22	4
Citizenship		
Non-Austrian Citizenship	28	5
Austrian Citizenship	553	95
Eligibility to vote		
Not eligible	287	51
Eligible	273	49

Note: $N = 594$; Participants were on average 17.10 years old ($SD = 1.18$).

Measures

Emotions Scales

Achievement Emotions

To measure achievement emotions, we adapted the AEQ-S (Bieleke et al., 2021) class-related emotions scales to the context of discussing social and political issues in class. It included four items for each emotion (enjoyment, hope, pride, anger, anxiety, shame, hopelessness, and boredom; e.g., "I enjoy discussions about political and social issues at school," or "I have lost all hope in understanding the content of discussions about political and social issues"), rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). As displayed in Table 2, the mean Cronbach's Alpha was .78 and ranged from .67 (anger) to .87 (boredom).

Table 2. Descriptive Statistics and Cronbach's Alpha of Variables of Interest

Variable	*M*	*SD*	*α*
Achievement emotions[a]			
Enjoyment	2.77	1.01	.86
Hope	2.86	0.85	.77
Pride	2.69	0.93	.72
Anger	2.14	0.84	.67
Anxiety	2.05	0.85	.73
Shame	2.06	0.91	.80
Hopelessness	2.03	0.81	.74
Boredom	2.40	1.06	.87
Epistemic political emotions[a]			
Epistemic political emotions scale (EPES)			
Surprise	2.49	0.78	.84
Curiosity	2.68	0.98	.92
Confusion	2.30	0.88	.88
Epistemic emotions scale (EES-D)			
Surprise	2.60	0.90	.81
Curiosity	3.36	1.08	.91
Confusion	2.42	1.03	.86
Appraisals[b]			
Control appraisals			
Internal political efficacy	2.54	0.55	.79
Epistemic political efficacy	3.33	0.77	.77
Citizenship self-efficacy	2.53	0.60	.80
Value appraisals			
Interest in political and social issues	2.72	0.55	.80
Value of achievement	2.56	0.65	.76
Personal importance	2.84	0.64	.80
Negative value	2.55	0.61	.68
Outcomes			
Students' engagement with political and social issues[b]	2.18	0.62	.84
Extrinsic motivation[a]	2.48	1.07	.86
Intrinsic motivation[a]	3.18	1.07	.89
Political knowledge test[c]	7.64	3.17	.84

Note: $N = 521–572$; For the reliability (α), Cronbach's alpha was calculated. For the knowledge test, ordinal coefficient alpha was used.

[a]Range from 1 (*strongly disagree*) to 5 (*strongly agree*).

[b]Range from 1 (*strongly disagree*) to 4 (*strongly agree*).

[c]Answers recoded to dummy variables (0 = *false*, 1 = *true*). As the knowledge test includes 15 items, the theoretical and empirical range in the sample is 0 to 15.

Epistemic Political Emotions

We used two scales to measure epistemic emotions (i.e., surprise, curiosity, and confusion): (1) a new scale addressing the component structure of emotions (affective, cognitive, motivational, physiological/expressive), called the Epistemic Political Emotions Scale (EPES), and (2) an adaption of the German version of the Epistemic Emotions Scale (EES-D; Vogl et al., 2018). The object focus of emotions in both scales was the processing of political and social information. For the EPES, items were pretested with a sample on university students ($N = 78$) and selected according to theoretical considerations and satisfying reliability values. The final scale included seven items for surprise (e.g., "Information about political and social issues always

surprises me"), seven items for curiosity (e.g., "I am curious about the political and social issues we deal with in school"), and seven items for confusion (e.g., "Information about political and social issues confuses me"). The items were rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The scales showed good measures of reliability, with a Cronbach's alpha of .84 for surprise, .92 for curiosity, and .88 for confusion (see Table 2 for details; items are provided in the online supporting information). The EES-D includes three affective terms each for surprise ($\alpha = .81$), curiosity ($\alpha = .91$), and confusion ($\alpha = .86$), rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). While we used emotions measured by the EES-D mainly as a measure of validity to the new scale, the EPES mimics the item composition of the AEQ-S and provided due to its component structure a better fit to the theoretical framework used in this study.

Antecedents of Emotions

Control Appraisals

We used three different measures of control appraisals. First, scales on internal political efficacy and students' sense of citizenship self-efficacy were administered (Brese et al., 2014). Internal political efficacy refers to students' beliefs in their abilities to understand and participate in politics and is measured with six items (e.g., "I am able to understand most political issues easily"; $\alpha = .79$). The scale on students' sense of citizenship self-efficacy consisted of seven items (e.g., "How well do you think you would do the following activities? Follow a television debate about a controversial issue"; $\alpha = .80$). In both scales, items were rated on a 4-point scale from 1 (*strongly disagree/not at all*) to 4 (*strongly agree/very good*). Finally, all participants completed a scale on epistemic political efficacy, translated from the scales developed by Pingree and colleagues (Pingree, 2011; Pingree et al., 2012). This scale assesses whether students feel efficacious to discover the truth in politics and included four items (e.g., "I feel confident that I can find the truth about political issues"; $\alpha = .77$) rated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

Value Appraisals

The value component was measured with four different scales: First, a scale on students' interest in political and social issues (Brese et al., 2014) consisting of seven items focusing on different political levels or policy issues (e.g., "How interested are you in the following issues? International politics", $\alpha = .80$), which were rated on a 4-point scale from 1 (*not at all interested*) to 4 (*very interested*). Second, two subscales of Gaspard et al.'s (2017) task-value scale were used to measure value of achievement (e.g., "It is important to me to be good at discussions in class", $\alpha = .76$) and personal importance (e.g., "Political and social issues are very important to me personally", $\alpha = .80$). Finally, we developed a scale on negative value of failure (e.g., "It is very important for me not to fail when discussing political and social issues," $\alpha = .68$). The three task-value dimensions were assessed with four items each, rated on a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*).

Effects of Emotions

To test relations between emotions and learning, we consider four motivational, behavioral, and academic outcomes in civic education. Intrinsic (1) and extrinsic (2) motivation were chosen

as mediators typically considered in the control value theory (Pekrun, 2006). Students' engagement with politics (3) specifically suits the context of civic education as learning often takes place in informal contexts (Losito et al., 2021). Finally, we have chosen political knowledge (4) as an achievement measure, which is considered as a core outcome of civic education (Carretero et al., 2016).

Engagement and Motivation

As possible outcomes of emotions in civic education, students' engagement with politics (nine items, e.g., talking with parents about political or social issues; $\alpha = .84$; Köhler et al., 2016) and intrinsic and extrinsic learning motivation (National Center for Education Statistics, 2018) were assessed. The motivation scale was translated to German and adapted to the learning context, focusing on discussions about political and social issues in class (e.g., "I want other students to think I am good in discussing political and social issues" for extrinsic motivation, $\alpha = .86$; "I want to learn as much as possible when discussing political and social issues" for intrinsic motivation, $\alpha = .89$). All eight items were rated on a 5-point Likert scale from 1 (*not at all*) to 5 (*exactly*).

Political Knowledge Test

Political knowledge was measured with a test adapted from the Austrian National Election Study (Kritzinger et al., 2020). It includes questions on the political system (e.g., "What is the electoral threshold for parties to enter parliament?") and politicians (i.e., "To which party do the following politicians belong?"). We additionally developed questions to address different policy issues (e.g., "Which institution supports employees in their job search?"), which were pretested before starting the data collection. The final scale included 15 items, which were recoded to *correct* (1) and *incorrect* (0) and summed up to a score ranging from 0 to 15 (ordinal coefficient $\alpha = .84$, items are available in the online supporting information).[4]

Analysis

Similar to prior studies on academic emotions and their antecedents and outcomes (Pekrun et al., 2023), we used structural equation models (SEM) to determine bivariate latent correlations between emotions and their antecedents and outcomes. With the exception of models including political knowledge, all models were estimated in the lavaan package Version 0.6-9 (Rosseel, 2012) in R Version 4.1.1 using robust maximum-likelihood estimation. As the knowledge scale includes dichotomous indicators, we used the estimator WLMSV in Mplus Version 8.5 (Muthén & Muthén, 1998), which is designed for estimations with ordinal endogenous variables.[5]

[4]One item from the original AUTNES scale was excluded due to low variation and a negative loading on the latent factor (voting age in Austria: 90% could give a correct answer). Although this item is usually used in representative studies with adult voters, it might not work in young samples where participants are directly affected from the regulation. Additionally, it differs from other items of the scale due to its open-answer format.

[5]Data and the analysis scripts are available through OSF.

Results

Missing Data

From all 594 participating students, 517 (87%) completed the survey. There was no significant difference between complete and incomplete cases in age ($t = 0.17$, $df = 85.6$, $p = 0.86$), migration background ($\chi^2 = 3.92$, $p = .27$), and school type ($\chi^2 = 2.06$, $p = .17$), but female participants were more likely than male participants to complete the survey ($\chi^2 = 10.19$, $p = .01$). Across all data, 7.62% of data originating from 115 incomplete cases were missing. Although a test proposed by Little (1988) for missing completely at random (MCAR) on the indicators for the emotion scales was not supported ($\chi^2 = 1081$, $df = 793$, $p < 0.001$), we only found significant relations between overall percentage of missing values and citizenship ($t = 3.15$, $df = 545.33$, $p = .002$), with a higher percentage of missing values among students with the Austrian citizenship (1.92%, $N = 553$) than students without the Austrian citizenship (0.96%, $N = 28$). To still use as much information as possible, we employed full information maximum-likelihood estimation (FIML) under the assumption of missing at random (MAR) in the models. Participants with missing values on all indicators included in a SEM model were excluded the analysis.

Descriptive Statistics

Table 2 shows the descriptive statistics of emotions, appraisals, and outcomes. Measurement models of the emotion scales and manifest and latent intercorrelations between the emotion scales and appraisals and outcomes can be found in the online supporting information (sections 3 and 4, respectively).

Antecedents of Emotions

Achievement Emotions

Latent correlations between discussion-related emotions and its control and value appraisals are displayed in Table 3. As expected, enjoyment, hope, and pride had moderate-to-strong positive associations with control ($r = .33$ to $.79$, $p < .001$) and value ($r = .53$ to $.77$, $p < .001$). In contrast, boredom consistently showed negative moderate-to-strong associations with control ($r = -.30$ to $-.60$, $p < .001$) and value ($r = -.38$ to $-.74$, $p < .001$). While there was no significant correlation between anger and control ($r = -.06$ to $.09$, $p > .211$), anxiety was related negatively to internal political efficacy and citizenship self-efficacy ($r = -.24$ to $-.38$, $p < .001$). Results on hopelessness and shame indicated negative small-to-moderate associations with all control ($r = -.17$ to $-.46$, $p < .002$). Concerning value, we expected a positive relation with negative value of failure. This hypothesis was supported by the results on anger ($r = .19$, $p = .004$) and anxiety ($r = .12$, $p = .048$), but not on shame ($r = -.003$, $p = .951$). Similar to boredom, hopelessness even revealed a negative correlation with negative value of failure ($r = -.14$, $p = .029$).

Epistemic Political Emotions

Latent correlations between epistemic political emotions and appraisals are displayed in Table 4. As expected, results indicated positive moderate-to-large associations between control and value and curiosity ($r = .35$ to $.75$, $p < .001$) and negative small associations between control and value and confusion ($r = -.23$ to $-.34$, $p < .001$). Results on surprise were similar to curiosity,

Table 3. Latent Correlations Between Discussion-Related Emotions and Cognitive Appraisals

Appraisals	Enjoyment	Hope	Pride	Anger	Anxiety	Shame	Hopeless	Boredom
Control appraisals								
Internal political efficacy	.73***	.77***	.79***	.09	−.24***	−.33***	−.37***	−.60***
Epistemic political efficacy	.33***	.46***	.39***	−.06	−.09	−.17**	−.24**	−.30***
Citizenship self-efficacy	.65***	.71***	.72***	.08	−.38***	−.46***	−.37***	−.53***
Value appraisals								
Interest	.71***	.71***	.66***	.06	−.08	−.18***	−.30***	−.63***
Importance of achievement	.67***	.67***	.70***	.16**	−.04	−.20***	−.22***	−.50***
Personal importance	.76***	.77***	.68***	.01	−.07	−.19***	−.42***	−.74***
Negative value of failure	.55***	.61***	.53***	.19**	.12*	.00	−.14*	−.38***

Note: $N = 563–573$. Standard errors are adjusted for clustering of the data within classes.
*$p < .05$; **$p < .01$; ***$p < .001$.

Table 4. Latent Correlations Between Epistemic Political Emotions and Cognitive Appraisals

	Epistemic Political Emotions Scale (EPES)			Epistemic Emotion Scale (EES-D)		
Appraisals	Surprise	Curiosity	Confusion	Surprise	Curiosity	Confusion
Control appraisals						
Internal political efficacy	.39***	.69***	−.34***	.22***	.65***	−.34***
Epistemic political efficacy	.17**	.36***	−.24***	.08	.35***	−.23***
Citizenship self-efficacy	.33***	.57***	−.28***	.19**	.54***	−.27***
Value appraisals						
Interest	.43***	.75***	−.25***	.22***	.69***	−.29***

Note: $N = 563–573$; Standard errors are adjusted for clustering of the data within classes.
**$p < .01$; ***$p < .001$.

indicating positive relations to both control and value but with a smaller effect size ($r = .17$ to $.43$, $p < .005$) and one nonsignificant relation.

Effects of Emotions

Achievement Emotions

When we turn to effects of emotions, latent correlations (Table 5) indicated moderate-to-large positive associations between positive-activating emotions and outcome variables ($r = .42$ to $.76$, $p < .001$). Negative-deactivating emotions indicated effects in the opposite direction, with small-to-moderate associations ($r = -.20$ to $-.52$, $p < .001$). Only the expected relation between hopelessness and extrinsic motivation was not significant ($r = .01$, $p = .883$). Concerning negative-activating emotions, anger and anxiety were related positively to extrinsic motivation ($r = .21$, $p < .001$, and $r = .19$, $p = .005$, respectively), and anger and shame were related negatively with achievement on the knowledge test ($r = -.23$, $p < .001$, $r = -.13$, $p = .005$, respectively).

Epistemic Political Emotions

For epistemic political emotions, we hypothesized positive relations to engagement and results on the knowledge test for all three emotions. However, results showed only positive

Table 5. Latent Correlations Between Discussion-Related Emotions and Outcomes

Outcomes	Engagement	Extrinsic Motivation	Intrinsic Motivation	Knowledge Test
Enjoyment	.62***	.54***	.76***	.42***
Hope	.63***	.55***	.76***	.48***
Pride	.61***	.65***	.67***	.43***
Anger	.12*	.21***	−.01	−.23***
Anxiety	−.08	.19**	.07	−.12
Shame	−.12	.07	−.04	−.13**
Hopelessness	−.31***	.01	−.34***	−.36***
Boredom	−.52***	−.20***	−.56***	−.36***

Note: $N = 551–552$; Standard errors are adjusted for clustering of the data within classes.
*$p < .05$; **$p < .01$; ***$p < .001$.

Table 6. Latent Correlations Between Epistemic Political Emotions and Outcomes

Emotions	Engagement	Knowledge Test
EPES		
Surprise	.38***	.18***
Curiosity	.68***	.43***
Confusion	−.15*	−.28***
EES-D		
Surprise	.16**	.20***
Curiosity	.58***	.44***
Confusion	−.20***	−.25***

Note: $N = 535–536$; Standard errors are adjusted for clustering of the data within classes.
*$p < .05$; **$p < .01$; ***$p < .001$.

latent correlations regarding surprise and curiosity ($r = .16$ to $.68$, $p < .004$), while confusion was negatively related with engagement ($r = -.15$ to $-.20$, $p < .014$) and knowledge ($r = -.25$ to $-.28$, $p < .001$; see Table 6).

Further Analysis

A robustness check using partial latent correlations with gender as a control variable revealed similar results, with a change in significance in only three out of 124 effect sizes (details are included in section 5 of the online supporting information, Tables S7–S10).

Discussion

The aim of the present research was to analyze emotions experienced in the context of political learning in adolescents, who are in a critical period of their political development. We investigated whether the control-value theory can be applied to emotions experienced in the cross-curricular context of civic education at upper secondary schools. Thus, we test how experienced emotions are associated with antecedents and academic outcomes. Two types of emotions were analyzed: (1) achievement emotions during discussions of political and social issues and (2) epistemic political emotions experienced during processing of information about political and social issues in class. We found broad support for expected relations regarding positive-activating emotions (enjoyment, hope, pride, curiosity) and negative-deactivating emotions (hopelessness, boredom). As anticipated, relations of

negative-activating emotions to their antecedents and effects depended in more complex ways on the kind of appraisal, discrete emotion, and outcome. The study contributes to the emotions literature by providing novel insights into a new content domain and a rarely investigated cross-curricular context.

Control and Value Appraisals as Antecedents of Emotions

Paralleling studies on emotions in other domains, we found consistent patterns of relations between control-value appraisals and emotions in civic education. While control appraisals were consistently positively related to positive-activating emotions, and negatively related to negative-deactivating emotions, relations to negative-activating emotions differed considerably. As hypothesized, control was negatively associated with anxiety and shame but not with anger. Although prior studies on emotions at school have shown no differences between anger and anxiety (e.g., Pekrun et al., 2011), studies from political psychology provide similar expectations. Huddy et al. (2007) suggest anxiety but not anger is characterized by lack of perceived control. Additionally, anger might differ regarding the object focus. Although discussions about political and social issues in class was included in the study, it is unclear whether reported anger is targeted at topics discussed, statements of classmates, or the situation of discussing as such. All in all, the results underline the importance to differentiate between negative-activating emotions in future studies and call for qualitative data especially on the experience of anger in this context.

In terms of value appraisals, this study was among the first to examine the positive relation of anger, anxiety, shame, and hopelessness with negative value of failure (Pekrun, 2006; Pekrun & Perry, 2014). Prior studies have shown similar results regarding extrinsic value appraisals such as the importance of grades (Goetz et al., 2020). While in the current study, this positive correlation with importance of achievement only appeared concerning anger, both anger and anxiety were, as expected, positively correlated with negative value of failure, but not correlated to intrinsic value. In line with the suggestion by a study testing the expectancy-value theory in the context of civic education (Liem & Chua, 2013), the results underline the importance to distinguish between different value appraisals especially when considering cognitive appraisals of negative-activating emotions.

Finally, results of the present study support the applicability of the control-value theory to epistemic emotions in the context of politics. While studies on epistemic emotions commonly focus on appraisals like novelty or complexity of information (Chevrier et al., 2019), only few studies have tested control-value appraisals regarding surprise, curiosity, and confusion (e.g., see Muis, Psaradellis, et al., 2015). The mostly moderate to large associations support the importance of control and value appraisal also for this type of emotions. Additionally, the developed scale for epistemic political emotions (EPES) provides a new instrument to measure epistemic emotions beyond their affective component. This is an important asset for future studies, especially as recent findings have shown differential relations between emotional components and performance (Roos et al., 2021).

Emotions and Learning in Civic Education

The strong correlations of positive-activating emotions with engagement and motivation support the motivational dimension of emotions and highlight their importance for learning. Additionally, we found a consistent pattern of relations between emotions and

students' achievement on a political knowledge test, indicated by positive correlations with positive-activating emotions and negative correlations with negative-deactivating emotions. Considering negative-activating emotions, our results corroborated prior research by showing positive correlations with extrinsic motivation for anger and anxiety, but no relation to intrinsic motivation (e.g., Pekrun et al., 2011). Additionally, similar differential effects of anger and anxiety have been found in studies from political psychology. Anger, often classified as an approach emotion and as motivating for action (Brader & Marcus, 2013), was related positively with engagement, the more behavioral outcome considered in the present study. At the same time, it was negatively related to scores on the knowledge test, but no significant relation occurred on anxiety. Several studies have shown no or suppressing effects of anger and positive effects of anxiety on political information seeking and learning (e.g., Park, 2015; Valentino et al., 2008). This might explain the negative relation of anger with achievement on the knowledge test.

Interestingly, while we expected learning to be triggered by all three types of epistemic political emotions considered, we only found positive correlations of surprise and curiosity with engagement and achievement in the knowledge test, while confusion showed consistent negative correlations with both concepts. Indeed, prior studies have found positive effects of confusion on learning (e.g., regarding knowledge exploration; Vogl et al., 2019), but effects are smaller and less consistent than those of other epistemic emotions. Long duration of and unresolved confusion can transit into negative emotions like frustration (Di Leo et al., 2019). This fast fluctuation and interplay of different emotions can only be shown at the state level. It might be that trait confusion, or a disposition to experience confusion in a specific context, is manifested and not easy to resolve, therefore more closely connected to other negative emotions. In line with this argument, our results show that confusion closely mirrored correlations of hopelessness. The negative relation to learning is in line with other studies looking at epistemic emotions at a trait level (Balaž & Pavlin-Bernardić, 2021) or with younger students (Muis, Psaradellis, et al., 2015).

Overall, the study adds to the limited literature on emotions in civic education (e.g., Bayram Özdemir et al., 2016; Garrett, 2020). Even if taught in a cross-curricular context, students could identify and report their experienced emotions by referring to two specific situations. We particularly find higher engagement, motivation, and knowledge coming along with positive emotions, although from the agonistic view on politics, general motivational effects due to conflict-evoked emotions are expected (Keegan, 2021). Although this might apply to activating emotions and political actions (e.g., see the small positive relationship between anger and engagement), it is likely detrimental for political knowledge.

Limitations

While the present study is the first to systematically investigate various discrete emotions in the context of civic education, it has some limitations. First, the cross-sectional design only provides correlational insights. It would be interesting to investigate the causal paths from appraisals through emotions towards civic learning. For example, future studies could look into the effects of appraisals by experimentally manipulating value and control or analyzing the temporal development of cognitive and affective states in cross-lagged panel models. Second, although in our targeted school types the proportion of female students is usually higher than the proportion of male students (Statistik Austria, 2022), female students were overrepresented in our sample. Although results from our robustness check

controlling for gender yielded mostly consistent results, gender imbalance may still limit the generalizability of our results. Third, we limit our civic-learning outcomes to engagement, motivation, and achievement on a knowledge test. Aims of civic education, however, are much broader—and also include identity and value development, participation, and civic skills (Carretero et al., 2016). As shown concerning anger, emotions differ in their direction and magnitude of the effect depending on the outcome, which underlines the importance to investigate relations to other aims of civic education in future studies. Additionally, we encourage future studies to investigate other core mediators between emotions and achievement mentioned in the control-value theory (e.g., cognitive resources, learning strategies; Pekrun, 2006). Fourth, we only looked at emotions experienced in a cross-curricular context of civic education. It is still unclear whether results would replicate in other contexts of civic learning. Related to this, we focused on bivariate correlations in this analysis, as the aim of the study was to inspect patterns of relations between antecedents and effects of emotions in the context of civic education. This enabled us to also compare it to results from prior studies using similar approaches (e.g., Bieleke et al., 2021; Pekrun et al., 2011, 2023). However, if interested in joint associations between cognitive appraisals, emotions, and outcomes, future studies might utilize multivariate analysis. Finally, we focused only on academic emotions that directly pertain to learning. Future studies could additionally investigate the role of topic and social emotions in the context of civic education.

Implications for Future Research and Practice

Studying emotions in civic education is challenging due to the broad and diverse contexts of civic learning at school. With the adaption and development of new emotion scales, we provide valid instruments to further investigate emotions and its role in civic learning. The scales are especially comprehensive as they address the component structure of both achievement and epistemic emotions. We encourage future studies to use the scales and deepen our understanding of their functioning by testing measurement invariance (e.g., across grades and cultures) and whether relations to antecedents and effects are similar in different subsamples.

Additionally, it would be interesting to further investigate implications of the control-value theory by analyzing distal antecedents of emotions in civic education. Besides individual dispositions (e.g., general political interest gained from political socialization at home), contextual characteristics of the class could be important distal antecedents of emotions to consider. Prior studies have, for example, investigated relations between teaching methods used in civic education (e.g., group work; Dassonneville et al., 2012; Neundorf et al., 2016) or experienced teaching quality (e.g., cognitive activation; Alscher et al., 2022; or open classroom climate; Manganelli et al., 2015; Sohl & Arensmeier, 2015) and civic learning. A more open classroom climate during discussions of political and social issues relates positively to students' citizenship self-efficacy (i.e., higher control appraisals; Manganelli et al., 2015). Similar, teachers encouraging students to express their opinion might increase the perceived importance to personally participate in the debate (i.e., value appraisals) and, in turn, the experience of positive emotions. This is in line with studies from other domains showing indirect effects from teaching methods on emotions via control and value appraisals (Goetz et al., 2020). Future studies investigating whether discrete emotions (e.g., enjoyment, anger, or boredom) and their control and value appraisals mediate relations between classroom context and civic learning would extend the current research and broaden the contemporary evidence (Bayram Özdemir et al., 2016; Manganelli et al., 2015).

Finally, teachers could use knowledge about the appraisals and effects of emotions to foster a positive emotional climate during cross-disciplinary civic education, thereby shaping students' habits about how they learn about political and social issues in their daily lives. The findings indicate that fostering positive emotions may be particularly beneficial. Positive emotions even relate positively to students' engagement outside of school. The facts and skills learned in emotionally engaging learning activities at school may improve students' ability to understand current political developments and participate in debates in their daily lives. This not only improves the civic competence of the youth but also the democratic processes in the long run.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Table S1. Epistemic Political Emotions Scale (EPES) Items
Table S2. Policy Questions of the Knowledge Test
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