

New perspectives on civic engagement as an outcome of higher education: an exploratory case study

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Abstract

This study explores the potential of a new perspective on research into the impact of higher education on students' civic engagement. We propose shifting from viewing engagement as the key dependent variable to two 'fundamental constituents': political interest and agency. Both constituents have been presented as either static or determined entirely by factors external to education, such as maturation, but also as dynamic and affected by various aspects of the educational experience in higher education. Furthermore, as analyses of these effects based on sample means do not account sufficiently for the intersectionality of background variables that define the student experience, we propose that data are explored through cluster analysis. Employing this type of analysis, a case study conducted at a small international liberal arts college in the Netherlands showed four distinctly different patterns in the development of both constituents of civic engagement. Based on further data obtained from the same sample, we offer suggestions for specific foci in further research about the impact of higher education on the development of civic engagement.

Keywords: Civic engagement; higher education; cluster analysis



1. Introduction

A recurring theme in the discourse on higher education is how one of its main contributions to society is to instil in students a sense of civic engagement. Over the last few decades, educators, (former) administrators, and philosophers have reflected on this specific aspect of higher education's mission. More often than not, they conclude the university had neglected its role in fostering such engagement, while many also provided broad or specific suggestions as to how the university could resume its responsibility (e.g., Aronowitz, 2000; Barnett 1990, 2000; Bok 2005, 2008; Boyer, 1990; Boyte, 2008; Boyte & Finders, 2016; Checkoway, 2001; Colby et al., 2003; Hartley et al., 2010; Lewis, 2007; Nussbaum, 2010; Readings 1997).

Stating that civic engagement is considered an essential outcome of higher education raises the question of whether it is something that *can be learned*. Understanding the potential role education can play in developing civic engagement implies understanding it as a learning outcome, regardless of its specific conceptualisation. Does civic engagement evolve and change, or is it innate, predetermined, and static? Furthermore, if it evolves, does it do so in ways similar for everyone (e.g., as a maturation effect) or more varied, in which case changes could be attributed to factors that are not uniform but determined by specific contexts or interventions, including educational ones? If civic engagement cannot be furthered by education, there would be little sense in making it a desired learning outcome, and it would be beside the point to judge education by its (lack of) effectiveness in helping students attain it.

With this study, we aim to contribute to the discourse on these issues, which can be summarised as the question about the nature of civic engagement and the role higher education might play in fostering it. We combine exploring the literature on civic engagement as an outcome of higher education and a case study conducted at a liberal arts college in the Netherlands to propose two related, new perspectives. First, we suggest that the impact of higher education on civic engagement can be understood better when more attention is given to the development of *fundamental constituents* of civic engagement. In this study, we present arguments for *political interest* and *agency* as such fundamental constituents. Secondly, we propose that various intersecting background variables affect this development in diverse ways in individuals. To capture this effect, quantitative research into the impact of education on engagement should use cluster analyses rather than sample means.

2. Research review: civic engagement as an outcome of learning

2.1 Conceptualisations of civic engagement

Civic engagement is often understood as an expression of social responsibility and active participation in the context of politics and established democratic structures and initiatives. Examples are membership in social organisations or volunteer work (Dee, 2004; Egerton, 2002; Helliwell & Putnam, 2007; Hillygus, 2005; Hylton, 2018; Yang & Hoskins, 2020; Milligan et al., 2004; Myers et al., 2019), or more broadly “prosocial and political contributions to community and society” (Wray-Lake & Schubert, 2019, p. 2169). In recent years, the terminology within this discourse has shifted from ‘civic’ or ‘social’ engagement to concepts like Global Citizenship Education or GCE (Palmer, 2018) and ‘civic agency’ (Boyte, 2008; Boyte & Finders, 2016). In the case of GCE, Palmer (2018, p. 135) concludes that while there are varying interpretations of the concept, these all have in common that they rely on ‘interrelation, inclusivity, curiosity, creativity, and criticality.’ Boyte’s conceptualisation of ‘civic agency’ takes engagement beyond participation in political structures and communities, as it stresses the role citizens can play in actively shaping those structures and communities (Boyte, 2008; Boyte & Finders, 2016).



2.2 Civic engagement as an outcome of higher education

As the conceptualisation of civic engagement evolved, so did research into civic engagement as an outcome of learning. This section explores a range of studies conducted between 1987 and 2020. Socio-economic background and maturation figure prominently and frequently as explanations of the extent and development of civic engagement, as do years in school and specific courses followed. The various interactions between these potential determinants make research into the impact of education on civic engagement a delicate affair. Pascarella and Terenzini (2005) refer to the maturation problem when they review the research on attitudes and values as outcomes of education. In that same publication, they stress the importance of distinguishing between effects *during* college and *due* to college. They issued the same caveat more than two decades earlier in the 1991 article summarising the educational research observations they made while writing the first edition of their meta-study (Pascarella & Terenzini, 1991).

The case *against* the effect of education on civic engagement has been put forward in studies that suggest an absence of any notable change. These studies primarily identify background variables as the main determinants of one's level of civic engagement. In what was essentially a comparative cross-sectional study, looking at first-year students, juniors, and recent graduates in three different medical schools in Michigan (U.S.), Maheux and Beland (1987) found little effect of education nor maturation on attitudes concerning medical-ethical issues in students attending medical school. They concluded that differences in attitudes were most likely a function of selection. Milner et al. (1999) surveyed students in the second, third, and final year of their undergraduate studies, presenting them with ethical issues and asking them to score their attitudes toward these on a 1-10 Likert scale. Looking at students in business education and comparing these to a control group of non-business students, they found no significant effects on their moral development of education nor maturation, only of starting position in terms of their attitudes towards moral issues (Milner et al., 1999). In both studies, no significant change was found in values or attitudes.

Effects based on social background and selection play an important role in longitudinal and cross-sectional studies comparing groups based on attainment, defined as time spent in higher education. Social background and (self) selection seem to be related to Holland's theory of congruence, developed further by, e.g., Smart, Feldman, and Ethington (2000), suggesting that students seek out for themselves an environment that they expect to be congruent with their values and interests. A similar explanation comes from Egerton (2002), who found that differences in civic engagement, in the form of membership, active or not, of a 'civic organisation', exist before entering higher education and change little, with only minor positive effects of higher education within specific groups.

A wide array of studies exist on the other side of the argument. These differ in the depth of analysis in establishing *what it is about education* that makes it an essential factor in developing civic engagement. The broadest observations concern the overall time spent in education without further specification. Milligan, Moretti, and Oreopoulos (2004) compared the impact of educational attainment, in terms of years spent in school, particularly on voting behaviour, between the U.S. and the U.K. For their study, Milligan et al. (2004) used data gathered through the National Election Studies, covering 1948-2000, and the November Voting Supplement to the Current Populations Surveys from 1978-2000 for the U.S. For the U.K., they combined data from the British Election Studies for elections between 1964 and 1997 and Eurobarometer surveys between 1973 and 1998. They found that educational attainment correlates significantly with voting behaviour in the U.S. but not in the U.K. Even without providing more insight into what it is about education that seems to have a positive impact on this specific aspect of civic engagement, the fact that attainment in years did have an effect, at least in the U.S., goes against the idea that the development of a stronger inclination to vote would merely be a matter of maturation. Milligan et al. (2004) found the same correlation between educational attainment and the extent to which citizens would be interested in public affairs and politics in both countries.

Focusing on the U.S. only, Dee (2004) looked at the effects of education on voter and volunteer participation and 'civic awareness'. Dee drew conclusions similar to those of Milligan et al. (2014) based



on data from the U.S. Department of Education's longitudinal High School and Beyond study, including questions on civic engagement and educational attainment. Dee concluded that "[...] educational attainment, both at the post-secondary and secondary levels, has large and independent effects on most measures of civic engagement and attitudes" (Dee 2004, p. 1717). Helliwell and Putnam (2007) defined 'social capital' as a combination of the level of trust in fellow citizens and indicators of civic engagement such as membership in clubs and participation in community activities. They found that time spent in higher education has positive relative and absolute effects on social capital (Helliwell & Putnam, 2007).

Other studies venture into finding specific aspects of education that may play a role in promoting civic engagement. Astin (1997) employed longitudinal data from the Cooperative Institutional Research Program (CIRP) as input for analysis based on his Input-Environment-Output model. He found most changes in socio-political attitudes attributable to social change, i.e., societal trends and the influence of peers and faculty (Astin, 1997). The latter was also found by Yang and Hoskins (2020), who used data from the Citizenship Education Longitudinal Study conducted in the U.K. between 2009 and 2014. They concluded that socialisation through interaction with peers and staff positively affected political participation (such as voting). However, political activism (protest) was not affected significantly, and volunteerism was negatively affected (Yang & Hoskins, 2020).

Laird (2005), building on research done by Gurin et al. (2002), assessed the impact of diversity and diversity-related programmes on three outcomes related to civic engagement, one of which being social agency, and found significant changes attributable to diversity. The studies by Laird (2005) and Gurin et al. (2002) were both survey-based and focused on the impact of diversity as an aspect of the opportunity structure provided by the higher education setting. Students were asked to indicate which level and type of interactional diversity they had experienced and to respond to items related to scales measuring, e.g., 'citizenship engagement', 'perspective taking', and 'active thinking' (Gurin et al., 2002), and 'social agency' and 'critical thinking' (Laird, 2005). Hillygus (2005) used longitudinal data from the Baccalaureate and Beyond Longitudinal Study, collected during interviews one and four years after graduation, with 9274 students who obtained their bachelor's degree in the academic year 1992-1993. Hillygus (2005) operationalised civic engagement as voting and other forms of political participation (e.g., attending rallies, volunteering for community action groups, or supporting political campaigns). They looked at the effect of pre-university variables such as parental education, high school test results, and aspects of the curriculum. She found positive significant effects on voting and political participation of curricula that stimulate the development of verbal skills and courses in social sciences (Hillygus, 2005). Myers et al. (2019) also found a specific impact of intentional, designed aspects of the education experience. They used Astin's Input-Environment-Output model in their analysis of the 2002-2012 Education Longitudinal Study, following a cohort of U.S. 10th graders starting in 2002. This study focused on the long-term effects of six High Impact Practices (HIP) on civic engagement and suggests a causal relationship between participation in four of them (mentoring, research with a faculty member, internships, and community-based activities) and higher civic engagement in adult life, with a more substantial effect in students entering college with lower civic orientations (Myers et al., 2019).

At the intersection of background variables and educational experience, we find a series of studies by Wray-Lake et al. (2014), Wray-Lake and Schubert (2019), and Wray-Lake, Arruda, and Schulenberg (2020). Wray-Lake et al. (2014) used data from the Longitudinal Study of American Youth, which followed adolescents from the age of 13-14 to age 18-19 in school and phone surveyed the same cohort one year after high school and again as adults twenty years after the first measurement. Employing a typology of four classes, effectively representing levels of engagement, they found that two-thirds of the subjects remained within their class and that the remaining third displayed upward as well as downward mobility, which "provided only modest support for age-related gains," nor overwhelming evidence for strong homogenous effects of education (Wray-Lake et al., 2014, p. 95). This general image was nuanced in two later studies. Wray-Lake and Schubert (2019), using the same data as Wray-Lake et al. (2014), saw gender, race/ethnicity, and parent education as significant determinants of specific levels (or types) of civic engagement in adolescents. As in the 2014 study, there was little mobility in types of engagement, but based on – in this case – the significant role of having 'civic discussions' with



parents (and, to a lesser extent, friends), they also found that civic engagement may need to be nurtured to maintain a certain level. Furthermore, in their 2020 study, based on the U.S. Monitoring the Future data, Wray-Lake et al. observed how trajectories in the development of levels and types of civic engagement diverged from general patterns associated with the 'transition to adolescence' due to the influence of race/ethnicity, parent education, and gender, and their intersections (Wray-Lake et al., 2020).

The intersectionality between various background variables and their interaction with environmental context is acknowledged in all of the studies presented above and addressed explicitly by Wray-Lake et al. (2014), Wray-Lake and Schubert (2019), and Wray-Lake, Arruda, and Schulenberg (2020). Their studies imply that for a better understanding of the impact of education on civic engagement, we need to look beyond effects at the level of an entire sample and instead zoom in on specific groups within one sample. Lerner et al. (2014) used longitudinal data obtained in their 4-H study, which followed young American adolescents from Grades 5 through 12 (ages 10-18), to model their development in terms of civic engagement. In this model on 'positive youth development,' political interest and agency are subsumed as two elements under one concept of 'positive and active civic engagement,' for which positive youth development serves as a precondition or a moderator for socio-economic background variables and attitudes. Their model presents a relational developmental systems perspective, which revolves around the dynamic between individual and context (Lerner et al., 2014), not unlike the Watts and Flanagan (2007) model of youth development within opportunity structures. Similar to Wray-Lake et al. (2014), several authors see education as just one context amongst many (family, friends, place) that all affect the development of civic engagement in youth (Wray-Lake & Schubert, 2019; Wray-Lake et al., 2020; Lerner et al., 2014). The intricate interplay between background variables leads Lerner et al. (2014) to conclude that a better understanding of the development of civic engagement in youth would benefit from a shift in the research from group to individual and from variable to class.

2.3 Fundamental constituents as common characteristics across conceptualisations of civic engagement

The conceptualisation of civic engagement (and how it is understood as an outcome of higher education) is multifaceted. It has evolved from forms of participation such as voter behaviour and social and political volunteerism to forms of activism aimed at shaping social structures and communities. One could argue that there is a 'family resemblance' between these various conceptualisations, in the sense of Wittgenstein's *Familienähnlichkeiten* (Wittgenstein, 1984). While such a resemblance is at once evident and elusive (the notion of 'games' is Wittgenstein's well-known example), it would benefit the study and understanding of this family of concepts as an outcome of higher education if specific essential shared characteristics could be identified. We propose that such shared characteristics can be found in what we call '*fundamental constituents*' for the various interpretations of civic engagement.

Boyte and Finders (2016) discuss 'civic agency' as the outcome of an interaction between an *intellectual engagement* with one's community or society and the *desire to take action* and belief in one's efficacy. A similar view can be found in a much earlier study on the civic engagement of youth in general. Watts and Flanagan (2007) identified two mutually reinforcing factors in civic engagement: On the one hand, an *interest in social and political affairs*, and the other hand, a *sense of agency* related specifically to those affairs. In a comparative study of several developmental theories, Wilkenfeld et al. (2010) found the same interaction between awareness and understanding and readiness and self-efficacy as two distinct features within the development of civic engagement in adolescents. Katzarska-Miller and Reysen (2013, 2018), in their discussion of a typology for global citizenship based on meta-analyses of their own and others, conclude that "the main content of global citizenship is a concern for the environment, valuing of diversity, empathy for others beyond the local environment, and a sense of responsibility to act" (Katzarska-Miller & Reysen, 2018, p. 3). All these perspectives on engagement share the idea that the presence of an interaction between two key traits is essential for the emergence



and development of civic engagement of any kind: an interest in, or intellectual engagement with social and political issues and a form of agency that combines a sense of responsibility and self-efficacy. Consequently, in this study, rather than using the elusive concept of civic engagement as an outcome of education, we suggest focusing on two *fundamental constituents of civic engagement* instead: political interest (as a concise expression for having an interest in social and political issues) and agency.

Given the essential role as fundamental constituents of civic engagement of both political interest and agency, we suggest they are meaningful alternatives to the various indicators often used if one wants to understand the role of higher education in enhancing civic engagement. This role should ultimately be understood as the degree to which political interest and agency are affected by education. The question is whether education plays a role in developing students' civic engagement and whether both constituents of civic engagement, i.e., political interest and agency, are static or dynamic. If the latter, the next question would be whether any changes in these constituents would be uniform or varied. Uniform change would suggest that a positive development in political interest and agency would merely be an effect of years of educational attainment, maturation, or both – leading us back to square one. Variations in change between groups or individuals suggest a more intricate interplay between variables. In that case, the studies cited above would suggest a role for background variables and specific aspects of the educational context.

3. Research aims and questions

The following empirical part of this study presents an exploratory case study that focuses on two questions: (1) Are political interest and agency static or dynamic, and more importantly, (2) if they evolve, do they do so in similar ways for every student, or are there diverse patterns of development? We hypothesised that we would find variation in how political interest and agency develop over time, indicating that any development in civic engagement, or rather in its constituents, is not simply a function of maturation or having spent a certain amount of time in education. This opens up the possibility that (constituents of) civic engagement *are* outcomes of higher education.

To our knowledge, this is the first study that approaches civic engagement through a quantitative analysis of two variables often identified as essential or fundamental constituents. A better understanding of how these two variables can and do evolve, jointly or separately, in one specific educational environment will help set the agenda for future studies on the impact of aspects of the learning environment and experience on civic engagement across various contexts of higher education.

4. Method

4.1 Participants

Students with a fair degree of similarity in selection and self-selection were included in the study, all starting and graduating at a similar age and all participating in the same liberal arts and sciences, open curriculum programme. We collected data from students at a small, three-year liberal arts and open curriculum university college in the Netherlands. We used an online survey that was administered twice. The first time was within several weeks after the start of the first year, as an integrated part of a mandatory introductory academic skills course (t1). We tested again two or three months before graduation while the students worked on their final thesis (t2). Data were anonymised in both cases. With the first-year students, the survey was administered along with several other surveys on motivation and self-regulated learning. As compensation for participation, students were offered a workshop, also part of the same skills course, in which they could reflect on outcomes based on data at the aggregate level. The survey was not part of a course module in the final year. Students who participated received



a gift voucher as compensation. Not being embedded in a course within the curriculum, the final-year survey yielded fewer results than the first-year survey. Data collection began in the fall of 2009 and ended in the spring of 2016. 951 t1-measurements (69.8% from 1362 first-year students) and 230 t2-measurements (19.6% from 1173 last year students) were obtained. As we were interested in developments over time, we isolated the cases for which we had both a t1 and a t2 measurement. The subset from the data that resulted, our working sample, contained 190 cases. The mean age of participants at t1 was 19.6 years, with a standard deviation of 1.4 years; 38.7% of these students are German, 38.7 are Dutch, and 20.9% are from other European countries.

4.2 Setting

All students study at a small liberal arts college (approximately 650 students in total at the time of data collection) in the Netherlands. The college only confers bachelor degrees and offers an 'open curriculum': students are free to design their individual three-year curriculum. The open curriculum assumes that, if adequately supported by engaged and committed teaching and support staff, it enhances student motivation and a sense of responsibility and ownership regarding their studies (Teagle, 2006). However, several specific criteria apply about the level and distribution of courses and other educational modules students select, which guarantee that students take a specific amount of advanced level courses and that there is a balance between a broad exploration of several academic disciplines ('general education') and a more in-depth focus within a broadly defined field of inquiry. The three broad fields of inquiry are called 'concentrations' (humanities, social sciences, and (life) sciences). The curriculum is geared predominantly toward the social sciences and the humanities. Within this general framework, students have considerable freedom to define their own individual pathways. Even within the 'concentrations,' there is room for various combinations of courses, making the concentration different from a 'major' where there is often less room for individual curriculum design. All courses employ the same pedagogical method of problem-based learning, and seventy per cent of all contact hours are spent in tutorial sessions with no more than twelve students under the guidance of one faculty. Motivation and civic engagement on the part of prospective students play a notable role in the recruitment, application, and selection processes. Eligible candidates (based on the level of the secondary education diploma, GPA, and motivation letter) participate in an admissions interview that includes questions about civic engagement and involvement.

Despite the individual freedom within the curricular structure and based on the emphases within the course offering as well as how the college selects and accepts its students, we assume that the majority of students share a distinct degree of interest in and engagement with social issues, while also being more or less the same age when they start their higher education.

4.3 Measures

We used the improved version of the Conditions for Civic Engagement Questionnaire (Van den Wijngaard et al., 2015), which consists of two scales, one for political interest and one for agency. The original validated questionnaire measured political interest and agency distributed across four scales. For measuring political interest, a distinction was made between two subscales: political interest and social analysis. Agency consisted of the subscales valuing applicability and self-efficacy.

All scales employed a Likert scale ranging from 1 (disagree strongly) to 7 (agree strongly). After carefully examining the questionnaire, we omitted several items referring to past attitudes or behaviour as these would not allow for measuring current attitudes. Five items remained in order to measure political interest. Consequently, the subscales of political interest and social analysis were grouped into one factor: political interest. Furthermore, taking into account previous internal reliability scores for the subscale self-efficacy ($\alpha = .57$), it was decided to delete the scale.



The fit of the shortened CSEQ was tested through confirmatory factor analysis (CFA). The CFA was conducted on the complete sample of 951 respondents, of which the data used for this study are a subset, using IBM/AMOS 23. The fit of the model was established through several key indicators. The normed chi-square (χ^2/df), to minimise the effect of the sample size, should be < 5 (Bollen, 1989). Hu and Bentler (1999) suggest a combinational rule that requires the Root Means Square Error Approximation (RMSEA) to be < 0.06 , the Standardized Root Mean Squared Residual (SRMR) < 0.08 , and the Comparative Fit Index (CFI) > 0.90 , and preferably even > 0.95 . Following our conceptual framework, we assumed that the two factors would correlate. The initial fit of our model was moderate, as indicated by the fit indices $\chi^2/df=4.87$, CFI=0.87, RMSEA=0.06, and SRMR=0.06. Based on the largest standardised residuals, we allowed the error terms of several items within the factors to correlate: in our factor political interest, the item "I usually like to discuss social issues and politics" with "I consider taking one or more courses in political science at the UCM." In the factor agency, the error term of the item "Theory is only relevant if it can be applied in a practical way" correlated with "What and how university teaches should reflect the needs of society" and "I expect that the knowledge and skills I acquire in university can be easily applied in society" with "It should be possible to do volunteer or charity work for credit at the college" respectively. These adjustments resulted in values representing a good model fit: $\chi^2/df=3.51$, CFI=0.92, RMSEA=0.05, and SRMR=0.05. Cronbach's alphas were .70 for political interest and .67 for agency. Table 1 lists the items of each scale. By measuring both variables twice, we generated four measures in total, two for each of our two variables, political interest (P.I.) and agency (A.G.), at t1 and t2, respectively.

Table 1
Scales, items, and reliability

Political Interest

Cronbach's α : .70

I usually like to discuss social issues and politics
I consider taking one or more courses in political science at UCM
I like to analyse the structure and workings of society
Governments should be followed critically
University should help students develop a critical view of society

Agency

Cronbach's α : .67

Theory is only relevant if it can be applied in a practical way
University should actively encourage students to use their knowledge and skills for the benefit of others
I believe individuals can make a real difference with regard to social issues
Social engagement can be taught and should be explicitly addressed in the university curriculum
What and how university teaches should reflect the needs of society
In fixing social problems and issues, the 'hands-on' approach usually works best
It should be possible to do volunteer or charity work for credit at the college
I expect that the knowledge and skills I acquire in university can be easily applied in society



4.4 Data analyses

We first established the descriptives and Pearson correlations for the variables indicated in Table 2. Then, we performed a paired samples t-test to determine whether our variables are dynamic, the outcomes of which should provide the basis for the analyses that allow us to establish the presence of specific patterns of development between the two variables. In order to test for patterns, we then performed a hierarchical cluster analysis for the change variables for political interest and agency, using the squared Euclidian distance as a measure of similarity and applying Ward's method in IBM SPSS Version 24 (2016). We determined the number of clusters best fitting the data through hierarchical cluster analysis. Based on the outcome of the hierarchical cluster analysis, we then performed a K-means analysis to arrive at an optimal assignment of subjects to clusters.

5. Results

Table 2 presents the descriptives and Pearson correlations for both variables, at both moments of measurement.

Table 2
Descriptive statistics and Pearson correlations for Agency and Political Interest at t₁ and t₂

Variable	Descriptives					Correlations		
	Mean	SD	Range	Min	Max	Agency t ₁	Agency t ₂	Political Interest t ₁
Agency t ₁	5.01	.71	4.63	2.13	6.75			
Agency t ₂	4.92	.76	3.88	3.13	7.00	.49**		
Political Interest t ₁	5.72	.85	4.20	2.80	7.00	.13	.04	
Political Interest t ₂	5.74	.95	4.60	2.40	7.00	-.04	.16*	.58**

*: Correlation is significant at the .05 level (2-tailed)

** : Correlation is significant at the .01 level (2-tailed)

A paired samples T-test was performed, which showed that there were no significant changes at the level of the total sample, as shown in Table 3.

Table 3
Paired samples test for Agency and Political Interest at t₁ and t₂

Variable	Mean	SD	SE	95% Confidence Interval of the Difference		t	df	sig. (2-tailed)
				Lower	Upper			
Agency	.0928	.7459	.0541	-.01398	.19951	1.714	189	.726
Political Interest	-.0211	.8273	.0600	-.13944	.09734	-.351	189	.088



As argued above, more than the absence of significant change in the sample means is needed as evidence for the absence of meaningful patterns at the level of individuals or groups within the sample. This is where we took a decision that we believe represents a new approach in analysing this type of data in the context of research on the impact of education on civic engagement – as we have found no examples of it in the literature. In order to create the possibility of identifying change at the individual level and potentially relating this to other variables, we took two steps: We created change variables and analysed these through cluster analysis.

First, we constructed change variables for both our independent variables. Variables Δ PI and Δ AG represent the difference in values t2-t1 for political interest and agency, respectively. Their means are the same as those of the paired samples t-test presented in Table 3.

Table 4
Statistics for the change variables for Agency and Political Interest

Variable	Δ AG	Δ PI
N	190	190
Mean	-.09	.02
Std. Error of Mean	.05	.06
Std. Deviation	.75	.83
Variance	.56	.68
Skewness	.11	.11
Std. Error of Skewness	.18	.18
Kurtosis	.06	.69
Std. Error of Kurtosis	.35	.35
Range	4.31	5.40
Minimum	-2.13	-2.40
Maximum	2.00	3.00

We then established the normalcy of the distribution based on the key statistics for both change variables; the results are shown in Table 4. The distribution for Δ PI is slightly leptokurtic, but otherwise, both variables display a normal distribution within a broad range, suggesting that both independent variables change over time in both positive and negative directions. Both variables correlated weakly yet significantly, Pearson's $r = .311$, $p < .001$. Checking for ceiling effects, we found that this is partially the case for political interest, but not in a strictly linear fashion. As presented in Table 5, the most significant increase for both variables occurred where the starting scores were the lowest. However, the highest starting scores did not lead to the highest decrease, and each variable developed differently in the four clusters, so ceiling effects do not explain all variance in change. The distribution and correlation values for the two change variables showed that both evolve in various ways.



Table 5
Checking for Ceiling Effects: Comparing t_1 and Change Values

	Agency		Political	
	t_1	ΔAG	Interest t_1	ΔPI
	4.643	.565	5.175	1.090
Means from lowest to	4.850	.438	5.742	.117
highest value	5.181	-.612	5.951	-1.130
	5.362	-.608	5.958	-.113

We submitted both variables to a hierarchical cluster analysis using the change variables ΔPI and ΔAG to determine the presence of significant patterns. Based on the agglomeration coefficients shown in Table 6, we established the cutoff point at four clusters.

Table 6
Establishing Cutoff Point for Cluster Analysis Ward's Method

Number of clusters	Coefficient Agglomeration		Change
	This step	Previous step	
2	234,518	161,282	73,236
3	161,282	122,270	39,012
4	122,270	90,840	31,430
5	90,840	74,090	16,750
6	74,090	62,251	11,839
7	62,251	55,378	6,873
8	55,378	49,122	6,256
9	49,122	43,845	5,277
10	43,845	38,669	5,176

We then performed a K-means analysis restricted to a single solution of four clusters. Analysis of variance (ANOVA) confirmed that the differences between the clusters we obtained were significant for both change variables; for the change variable for political interest: $F(3,186) = 179,589, p = .000$, for the change variable for agency: $F(3,186) = 80,293, p = .000$.

We thus found that the largest cluster ($N=65$) consisted of students whose political interest had only a marginally larger value (-.61). The second cluster ($N=48$) showed a decrease in political interest (-.11) and an increase in agency (.57). The third cluster ($N=40$) was populated with students whose political interest and agency both increased rather substantially (1.09 and .44 respectively). The fourth and smallest cluster ($N=37$) was made up of students with a substantially decreased level of political interest (-1.13) and agency (-.61). Figure 1 offers a visual representation of the varying degrees of change for both variables for all four clusters.

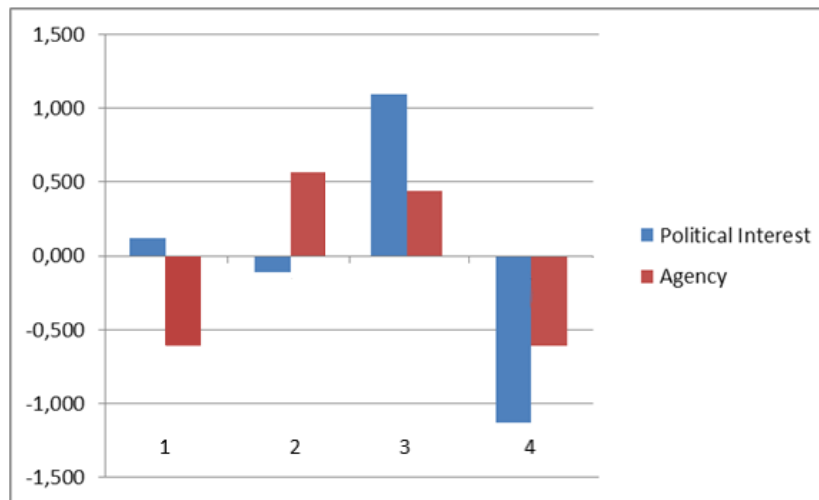


Figure 1: Change in means (*y*-axis) per cluster (*x*-axis) for Political Interest and Agency from t_1 to t_2

6. Discussion and conclusion

Our analysis of the change variables for political interest and agency showed significant variation in how these two variables developed over time. This confirmed our hypothesis that this would be the case and supported using these fundamental constituents as more specific and operationalisable variables in studies on civic engagement as an outcome of (higher) education. Furthermore, the outcome supports our suggestions that cluster analysis rather than analyses of sample means provides helpful insights into the development of these variables over time.

With this study, we aimed to assess whether the impact of higher education on civic engagement could be understood better if the focus shifted from studying civic engagement to its constituents. Based on a literature review, we proposed two such constituents: political interest and agency. As important as this shift toward different dependent variables is the assessment of the nature of these variables: Are they static or dynamic? Furthermore, we wanted to know whether, *if* dynamic, such variables would evolve in a uniform or a diverse fashion, in which case those changes could be attributed to factors that are not uniform (much as maturation) but are determined by specific contexts, including educational ones. From the studies included in this review, Egerton (2002) takes the most radical stance, proposing that attitudes towards civic education are primarily developed and defined before entering higher education and that, therefore, these are hardly affected by education at that level. If maturation or other variables that apply to all students in a cohort were the most important factors influencing our dependent variables, as Milner et al. (1999) suggest, we would expect to see a uniform development with no significant differences between individuals or groups progressing through time within a cohort. Similar outcomes, yet for different reasons, should be expected if constituents of civic engagement would be primarily a function of (self) selection, as Maheux and Beland (1987) suggest, social background and self-selection, as proposed by Smart, Feldman, and Ethington (2000), in their application of Holland's theory on congruence.

Even if we assume an effect of education on civic engagement, there may be different rationales for that expectation, yet with similar consequences for how dependent variables are affected. The relationship between education and civic engagement that Milligan et al. (2004), Dee (2004), and Helliwell and Putnam (2007) found is mainly a correlation between years in higher education and levels of civic engagement. Astin (1997) adds changes in the overall social climate as a factor to years in college, yet in all of these cases, one would expect similar straightforward correlational effects for an entire cohort.



If other factors, within and outside the educational setting, would affect different individuals or groups differently, we would expect to find two or more diverging patterns within a cohort. Focusing on the impact of experiences of interactional diversity, the studies by Gurin et al. (2002) and Laird (2005) suggest that specific aspects of the educational experience that are not shared by an entire cohort lead to different outcomes regarding levels of civic engagement. We collected data from first-year students and students near graduation at a three-year liberal arts undergraduate programme. This programme has several features that provide the possibility of diverging educational paths due to the openness of the curriculum, in which students design their individual programmes within certain boundaries related to level and focus. At the same time, the way the programme recruits and selects its students strongly emphasises social responsibility and engagement. In terms of the starting position, as Milner et al. (1999) discuss in their study on business students, while not necessarily being homogenous, incoming students at this particular college may be expected to have a certain level of civic engagement in common. This relatively high level of ‘civic orientation’ (Myers et al., 2019) is reflected by the values of our two variables at t1, the beginning of the first year, for the entire sample: 5.72 (SD 0.85) for political interest and 5.01 (SD 0.71) for agency on a 1-7 Likert scale.

Despite this apparent homogeneity, which seemed to be confirmed by similar changes in both dependent variables to the extent of moderate yet significant correlation, upon cluster analysis, we found four distinct groups, significantly different from each other, with varying combinations of increasing or decreasing values for political interest and agency. The range of change is slightly larger for political interest (between -1.13 and 1.09) than for agency (between -.61 and .57), yet both are substantial given the 1-7 scale. Patterns of change are somewhat diverse, as is also suggested by the weak correlation between the two change variables ($r = .311$, $p < .001$) between these groups; increasing and decreasing values for both variables combine in different ways.

The outcomes of this case study suggest that it adds to our understanding of the impact of higher education on civic engagement if more attention is given to its impact on political interest and agency, which we presented as two important constituents of civic engagement. We found that, by applying cluster analysis rather than analyses based on sample means, these constituents are not only dynamic but, while correlating, evolve separately in diverse ways. This implies that maturation or years in college do not provide an adequate explanation for the change, or at least not to the extent that would render research into other potential determinants irrelevant. Likewise, the effect of a similar starting position, at least in this group of students at a college with a reasonably distinct profile emphasising civic engagement, does not seem to be sufficient to explain individual developments in political interest and agency or the dynamic between the two constituents.

7. Limitations and further research

This study aimed to establish the nature of political interest and agency, seen as dependent variables in models describing the impact of higher education on civic engagement. The sample size and setting scope were limited to one liberal arts college with a specific signature that emphasised civic engagement. While this allowed us to see whether there are distinct variations in the development of both variables even in a potentially homogenous sample, confirmatory studies in other settings could further establish the nature of these variables and, with that, raise the level of relevance of research exploring the reasons for such variation.

In the absence of background variables such as socio-economic status, parental education, and ethnicity, we refrained from drawing any conclusions about the potential interaction between the input and the environment from Astin’s (1997) input-environment-output model, as Myers et al. (2019) did in their study on the effect of High Impact Practices on civic engagement. In the absence of substantial community or service-oriented activities within or around the curriculum that could serve the ‘third mission of the university’ (Compagnucci & Spigarelli, 2020), we were not able to make a meaningful appraisal of the role such potential aspects of the environment may have played towards the observed



outcomes. Likewise, an analysis of the role of an intersectional starting position, as explored by Wray-Lake et al. (2014), Wray-Lake and Schubert (2019), and Wray-Lake et al. (2020), could not be performed.

Looking at nationality, the distribution of students within each cluster did not deviate significantly or even remarkably from that over the entire sample, with a similar clear and dominant presence of Dutch and German students. We found, however, several interesting characteristics of the membership of each of the four clusters regarding gender and curricular reorientation. In a sample of $N=190$ and a 3.41:1 female/male ratio, the effect of gender is difficult to establish with statistical significance. Furthermore, the binary gender categories used in this study do not allow for a sophisticated understanding of the potential impact of gender on the development of the fundamental constituents of civic engagement. Acknowledging these limitations, we noticed that the third cluster, which shows an increase in both political interest and agency, had a high female/male ratio of 4.7:1. The fourth cluster, in which both variables decrease, had a ratio of 2.4:1, considerably lower than the sample ratio.

A second set of observations concerned the academic focus of the members of each cluster and relates to the positive effect described by Hillygus (2005) and Hoyte (2018) of social science courses on civic engagement. As explained above, the curriculum at the college under study is open. It does not have defined majors, but students cluster their courses within the ‘concentrations’ social sciences, humanities, and (life) sciences or combine one (and occasionally all) of these ‘concentrations’. As 51.6% of students in this study graduated with a social science curriculum, and a further 30.0% with a focus within the social sciences and humanities, combined with the relatively small sample, it was impossible to draw statistically significant conclusions. Interestingly, however, we saw that the clusters with the highest combined increase and the highest combined decrease in values for both variables had the highest percentage of social science graduates (57.5% and 59.5 respectively). Comparing these two clusters would suggest that a strong presence of social sciences courses in a curriculum does not guarantee a positive development of political interest and agency.

A final observation concerned the difference between clusters regarding students shifting their academic focus between the first and the final semesters. On average, 13.2% of all students in the sample graduated with a different academic focus than they identified at the beginning of their studies. The same caveats apply, but here we found that the cluster of members whose political interest and agency grew significantly also had the largest percentage of switches in curricular focus (17.5%). In comparison, the cluster in which the values of both variables dropped substantially shifted the least (5.4%).

The limitations of this study lie in its limited scope, as we used data obtained from students at a single institution, and we were able to perform a longitudinal analysis on only a subset of that data. The fact that, even within a relatively small and homogenous sample, we could establish four classes or clusters based on distinctly different patterns justified one crucial conclusion: political interest and agency, as fundamental constituents of civic engagement, clearly are dynamic and can evolve in similar or opposite directions. While our sample did not allow for specific correlation, let alone causation, between other environmental or background variables and these trends, our tentative findings suggest the possibility of explanations, some of which are, and some of which are not in line with the existing literature.

Research to provide such explanations would have to focus on the individual, as Lerner et al. (2014) suggested. A robust approach to intersectionality advocated by, e.g., Wray-Lake et al. (2020) would have to do justice to the potential interaction between input *and* environmental factors, thus extending the notion of intersectionality beyond various personal background variables. As noted needing a stronger quantitative foundation, our three tentative musings suggest an interplay between (at least) gender, academic focus, and stability in academic focus. The latter two aspects could be explored by reviewing the role of disciplines and intended outcomes of programmes and institutions, service and community-oriented components of the learning environment (curricular and extracurricular), as well as the implicit or explicit emphasis on civic engagement in curricula (the visibility of a ‘third mission’),






in the context of civic engagement. The idea that students tend to enrol in programmes that match their interests and personal values, as developed by Smart, Feldman, and Ethington (2000), building on congruence theories developed by Holland, may provide an attractive linking pin between the role of personal attitudes and preferences on the one hand, and of specific educational programmes or interventions on the other. This connection could be given further explanatory power if differences between developments in constituents of civic engagement could be related to differences between academic disciplines in terms of concepts of knowledge and approaches to teaching and learning (e.g., Neumann, 2001; Smart et al., 2000). In addition to quantitative methods, as explored in this article, further understanding of the interaction between various variables could be obtained through qualitative research by interviewing students individually or in groups.

8. Practical implications

Next to the implications for future research discussed above, on a more practical level, our findings suggest that specific constituents of civic engagement can be seen as outcomes of learning. How these outcomes evolve may depend on many factors within and outside the curriculum. Developing or maintaining a sense of civic engagement (or its constituent) is a volatile process that requires careful attention. If the promotion of civic engagement in students is part of the mission of a course (or programme or institution), the identification of such factors and an assessment of their impact will need to be part of the educational design process. The fact that civic engagement as an outcome of learning can be broken down into two specific, distinct fundamental constituents may help in that process. Rather than having to choose between precise outcomes, most of which may potentially only manifest themselves after graduation (e.g., voting, party membership, participation in civic or political action), or broad, hard-to-grasp objectives (an attitude of 'civic engagement'), didactics and pedagogy can be applied towards more tangible, measurable outcomes, that may manifest themselves while students are still in college.

Key points

-  We show that the varying conceptualisations of 'civic engagement' share political interest and agency as 'fundamental constituents'.
-  We propose that using such constituents as dependent variables will allow for a better understanding of the impact of higher education on civic engagement of students.
-  We show that an analysis of profiles of higher education students shows a more complex and nuanced picture of how their civic engagement evolves than when analysing the relation between education and the evolution of civic engagement on a group level.

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