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The Prediction of Political Competencies by Political Action and Political Media Consumption

Political competencies are often considered a precondition for political action; however, they are not independent of previous political participation, which may also include the frequency and the kind of political media consumption. My research aims at finding out the importance of participation in political activities in the past, as well as taking over civic responsibility in positions at school or university for cognitive political competencies. The focus is on structural political knowledge of the polity, symbolic political knowledge about political figures and actors, and political reasoning. The main hypothesis reads that the media primarily influence symbolic political knowledge, while structural political knowledge is mainly achieved by active political participation. The ability of political reasoning is assumed to be equally influenced by both, media consumption and political participation. By using a small, homogeneous sample of university students, these hypotheses are examined by taking into consideration socio-demographic control variables and political interest in statistical analyses and by considering differential effects of various political activities and different forms of political media consumption. The results are primarily discussed with respect to potential future research and by considering political education in modern societies.

Keywords:

Political competencies, political action, political knowledge, political media, political reasoning, students

1 Introduction

It is a commonplace that every democratic society needs a politically competent and engaged citizenry. The acquisition of political competencies by a country's citizens and their active participation in politics are therefore significant for the legitimization of democratic constituted political systems. In this connection, political competencies are often considered a precondition for political action; however, they are not independent of previous political participation. Moreover, the frequency and the kind of political media consumption—e.g., tabloids, broadsheet newspapers, television, Internet—may also be understood as some sort of participation and, thus, are further conditions to be taken into account, in particular when predicting political knowledge. Consequently, this paper aims to analyse the influence of these variables on different kinds of political knowledge and on political reasoning.

This is sought to be a *pilot study* which was conducted as part of a larger project and which aims to identify variables that have to be considered in future civic education research. This study was a first attempt of the researcher to explore possible correlations between cognitive

political competencies and political participation in a wider understanding, i.e. including political media consumption and past activities at school and university. The paper's key research questions circle around the issues of the possible differences of various political/civic activities' shaping of political competencies among highly educated people. This also comprises the usage of different mass media and its effects on political knowledge acquisition and the question whether the media or active political participation are more important in the prediction of political knowledge and the ability of political reasoning. The central aim of this paper is better to understand requirements for subsequent studies, in particular the identification of possible challenges and indicators that need to be measured when it comes to the prediction of political competencies by political behaviour. Is it necessary to distinguish different kinds of political behaviour and between the uses of different types of the mass media? Can we identify specific effects on different cognitive political competencies or do we—empirically—find the same effects for each of the competencies we may differentiate conceptually? This is also incredibly important with respect to questionnaire economy as no scholar would like to “waste” questionnaire space on items that need not to be measured because of constructs that largely overlap in empirical regards. Furthermore, every researcher would prefer to keep any inconvenience study participants might experience (e.g., investment of time to fill in a questionnaire) to the lowest degree possible.

The following section provides the reader with the theoretical framework of this article and familiarizes with the concepts which are used. Although the study was meant to be a first approach to explore the topic by the author, it did by no means start from scratch but could

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build on other works and theoretical considerations. The third section sketches the existing empirical evidence and develops some hypotheses based on those findings, even though the present study was primarily supposed to explore relationships. After the methodology has been described in more detail, the results will be presented in section four. After a comparison and integration of the analyses, a discussion of the findings relates these back to the aims of the study and provides the reader with some conclusions that may be drawn from this study. The results are also discussed considering the importance of contemporary political education and the provision of political media in modern societies.

2 Theoretical framework

2.1 Political competencies

Political competence can be defined as the ability to understand, judge, and successfully influence politics and political facts (e.g., Gabriel 2008). Key political competencies are the ability to analyse and judge political incidents, problems and decisions on one's own (*political analysing and reasoning*), to formulate one's own political positions, convictions and opinions, and to advocate them in political negotiations (*capacity to act politically*), and *methodical abilities* (Detjen, 2013; GPJE, 2004; Krammer, 2008; Sander, 2008). In addition, *political knowledge* can be defined "as the range of factual information about politics that is stored in long-term memory" (Delli Carpini/Keeter, 1996, p. 10). Political knowledge, especially conceptual knowledge – i.e. knowledge about political concepts and procedures – goes as a basic precondition for the acquisition of the previously mentioned three competencies (GPJE, 2004; Krammer, 2008; Richter, 2008; Sander, 2008). Therefore, the possession of political knowledge and its recall can be seen as a component of objective political competence: political knowledge is a "content-related competence" and, thus, a central part of political basic education and more or less a political competence itself (Richter, 2008; Weißeno, 2009; compare also Hoskins et al. 2008; Rychen, 2004), because it has to be acquired, must be stored and should be available. This claim is decidedly true since Torney-Purta (1995) states the political as a special and fourth basic knowledge domain besides biology, physics, and psychology – thus, politics require an own domestic-specific thinking and problem-solving on the foundation of domain-related knowledge.

As it is difficult to adequately measure *all* objective competencies, the focus is only on the cognitive dimension (but not on the methodical or agency dimension). On the one hand, this dimension contains the competence of political analysing and reasoning (short: political reasoning); on the other hand, political knowledge as "content-related competence" and basic prerequisite for all the other political competencies is part of it (Schulz et al. 2010). In addition, for political knowledge the differentiation between two facets seems reasonable: Johann (2012) stated that we should distinguish between knowledge of political figures, i.e.

'symbolic' political knowledge of political actors etc., and knowledge of political rules, i.e. 'structural' political knowledge, especially knowledge of the polity. Although not totally separated, they still are distinct types of political knowledge (Westle, 2005). Furthermore, this division is similar to what Jennings (1996) called "textbook knowledge" of the mechanics of the political system versus "surveillance knowledge"¹ of current political events and politicians, and this distinction is supported by Delli Carpini and Keeter (1996) as well. Thus, it may also be important to distinguish between at least two kinds of political knowledge in the present study as those kinds might be differently affected by the different political activities people engage in.

2.2 Political action

"Political participation" or "political action" or "political behaviour" consists of every voluntary activity a citizen takes to influence authoritative or generally binding regulations and decisions on any of the different levels of the political system (Kaase, 1992, p. 339). Based on existing literature (e.g., Barnes et al. 1979; Steinbrecher 2009), we may distinguish four kinds of political action: *Electoral* political participation—voting—does not require intense effort, nor is it bound by a strong commitment. The only constraint on voting is formal regulations (e.g., citizenship). *Conventional* political activities are traditional, party-related forms of participation. These are often institutionalized, require some commitment as well as a higher investment of time by the activists and are sometimes called "party politics" (e.g., supporting an election campaign). *Unconventional* activities refer to a broad range of less time-intensive or committed political participation activities outside the realm of political parties. These do in fact have a long tradition in many Western countries and are nowadays also often referred to as "protest activities" (e.g., signing a petition, distributing leaflets). Finally, *non-normative*, illegal political activities are those that are located outside the legal framework (e.g., attending a violent demonstration).

2.3 Student participation

For young people to obtain a proper minimum of political knowledge and skills, also schools play an important role (e.g., Davies et al., 2006; Niemi/Junn, 1998; Print, 2012; see also below)—not only because of civic education which is taught at schools as a school subject, at least in Germany. At school students can gather first experiences in an environment which may (or may not) provide opportunities actively to shape the own community, which in this respect is the school. For example, pupils who engage in school elections are more knowledgeable and prone to engage in the political realm (e.g., Saha & Print, 2010). However, students can participate in more ways at school and later also at university, e.g., in student councils, in various elections or even in protest movements. It is thus reasonable not only to focus on mere political activities, but also to account for

participation in collectives which young people experience directly almost every day.

2.4 Political media

Besides the aforementioned political activities which may also be defined as “participative political action”, following Niedermayer (2001, p. 131) it is reasonable to define the use of media as “communicative” or communication-oriented political action. This is indeed very plausible as people who actively seek for political information to some extent will undertake actions to get politically informed. In many regards, political information then will be gathered from the mass media; although many people probably consume political information by accident or absent-mindedly. Although research suggests that we may need to disentangle the effects of the different kinds of media, media content etc. on political knowledge (e.g., Barabas & Jerit, 2009; Delli Carpini & Keeter, 1996; Fraile & Iyengar, 2014; Galston, 2001; Norris, 1996; Prior, 2005), it may well be argued that the mass media is probably one of the most important sources for the acquisition of political knowledge, whether or not used purposefully to acquire political information.

Whereas the emergence of the television led to a strong personalization of politics (McAllister, 2007), providing more superficial information, other media, particularly newspapers, remain sources of more detailed political information (Chaffee & Frank, 1996). The use of mass media for the purpose of political information increases political knowledge, though particularly newspapers affect political knowledge positively (Fraile, 2011; Valentino & Nardis, 2013, p. 571f.). Even compared to the Internet, print versions of newspapers seem to be more influential in the learning process of citizens (Eveland & Dunwoody, 2001; Tewksbury & Althaus, 2000). However, recent research suggests that online news readers are seeking detailed information, too (e.g., Poynter Institute, 2008; Fraile, 2011). Self-selectivity results in an even increasing knowledge gap with respect to political information (e.g., Kim, 2008; Prior, 2005) which may be intensified by the existence of the Internet (e.g., McAllister & Gibson, 2011; Wei & Hindman, 2011).

Hence, when analysing effects of media use on political knowledge, we have to account for the frequency and kind of medium (e.g. Horstmann, 1991). Here it is also important to consider differences within specific mass media, such as broadsheet versus tabloid newspapers or public versus commercial/private broadcasting, because exposure to those outlets with high levels of political content (i.e. public television news and broadsheets) contributes the most to increases in or higher levels of political knowledge (e.g. de Vreese & Boomgaarden, 2006; Fraile & Iyengar, 2014; Holtz-Bacha & Norris, 2001; Milner, 2002). Again it is worth mentioning that this is not a one-way path, but political media exposure and political knowledge both affect each other (e.g., Atkin, Galloway & Nayman, 1976).

3 Method

The present study was conducted as part of a larger project which did not primarily focus on cognitive politicization (see Reichert, 2013; Simon, Reichert & Grabow, 2013; Simon et al. 2014). This sub-study is a first attempt of the researcher to explore possible correlations between cognitive political competencies and political participation in a wider understanding, i.e. including political media consumption and past activities at school and university. The main aim of this research is to better understand requirements for subsequent research, in particular the identification of possible challenges and indicators that need to be measured when it will come to the prediction of political competencies by political behaviour. In order to examine potential associations and to identify the needs of appropriate measurements for future research, the present study was carried out as a pilot study. Although working hypotheses could be derived from previous research.

3.1 Predicting political competencies: Hypotheses

Predicting political competencies often relies on the same models that predict political action. At the individual level, biological variables like, for instance, personality traits (e.g., Mondak et al., 2010; Quintelier, 2012) or genetics (e.g., Fowler, Baker & Dawes, 2008; Hatemi et al., 2007) have been taken into consideration recently. Traditionally, politicization is explained by demographics (e.g. age, gender), the existence of resources (e.g. status, income; see Verba & Nie, 1972; Verba, Nie & Kim, 1978), or social capital (esp. social networks; cf. Putnam, 1993; 2000); by the political values and attitudes of individuals; and by political interest, political efficacy and past political behaviour (e.g., Balch, 1974; Galston, 2001; van Deth, 2001) (cf. Steinbrecher, 2009; Verba, Schlozman & Brady, 1995).

Hence, political competencies, including knowledge, usually increase with age, and a body of evidence suggests that those who are better educated as well as males² are more politically competent (e.g., Delli Carpini & Keeter 1996; Gaiser, Gille & de Rijke, 2010; Gidengil et al. 2004; Grönlund & Milner, 2006; Krampen, 1991; 2000; Kuhn, 2006; Maier, 2000; van Deth, 2013; Vetter, 2006; Weißeno & Eck, 2013; Westle, 2005; 2012), even though Schulz et al. (2010) did not find an effect for gender on political knowledge. Furthermore, people have higher levels of political knowledge after political elections compared to before political elections (Maier, 2009; Westle, 2012).

Studies have also demonstrated that especially *political interest*—often defined as the “degree to which politics arouses a citizen’s curiosity” (van Deth, 1990, p. 278) and which comprises political awareness or attentiveness (cf. Zaller 1992)—and *internal political efficacy*, also known as “subjective political competence”, i.e. the feeling that one is capable to understand political facts and processes and to take political influence—the feeling of being politically powerful on one’s own (cf. Almond & Verba, 1965; Balch, 1974; Campbell, Gurin & Miller, 1954)—correlate

positively with objective political competencies (e.g., Fischer, 1997; Maier, 2000; Vetter & Maier, 2005; Weißeno & Eck, 2013; Westle, 2005; 2006). Furthermore, it is reasonable to assume that internal political efficacy reflects political knowledge and political competencies in general (cf. Reichert 2010).

For respondents with Turkish migration history, Westle (2011; 2012) also identified a positive relationship between political knowledge and being born in the country of residence (i.e. Germany). In addition, the pilot phase of the German naturalization test yielded that a “migration history” explains substantial variance of the performance when testing political and societal knowledge, though language skills are also important (Greve et al., 2009). Interestingly, in that study political knowledge did not correlated significantly with gender, time spent in Germany or the age of the course participants.

Moreover, it is obvious that political competencies and political behaviour correlate with each other. However, it is difficult to examine the causal relationship, but there probably exists an interrelation between both, political competence and political action. Schools do also play an important role for young people to obtain political knowledge and skills (e.g. Amadeo et al., 2002; Davies et al. 2006; Hahn, 2010; Hoskins et al. 2011; Kahne, Crow & Lee 2013; Keating, Benton & Kerr, 2012; Niemi & Junn, 1998; Print, 2012; Saha & Print, 2010; Schulz et al. 2010; Torney-Purta et al. 2001; Zhang, Torney-Purta & Barber, 2010), and especially universities are arenas for political protest. Both may provide learning opportunities through civic, community and/or political activities in school or university which further support the development of political competencies. On the other hand, they also provide cognitive input which as a consequence might lead to civic and political participation.

Finally, media usage is also discussed to be important for political information (e.g. Horstmann, 1991; Print, Saha & Edwards, 2004; Valentino & Nardis, 2013) as reported in the previous section and may, thus, be considered a predictor of political knowledge, too. The mass media convey political information, but do not usually intend to educate their audience. The media in fact tends to focus on interesting and newsworthy current events, particularly negative incidents (e.g. Galtung & Ruge, 1965). These events are what figure in discussions in social media or reports by the mass media.

In conclusion, it may be suspected that the media plays an important role in informing the populace about current *events and facts*, whereas civic education classes and active participation in school, at university or in political realm may establish a deeper *understanding of politics* (see also Print, 2012; Reichert, 2010). Therefore, it is hypothesized that (1a) the media primarily influence symbolic political knowledge positively (which is also easier to achieve in cases when people only absorb political information by accident, e.g., when watching television or listening to the radio), while (1b) structural political knowledge is mainly achieved by active political participation. (1c) Participation at school or university

might also be positive for structural political knowledge, and differences between different kinds of participation may exist.

These hypotheses may even be specified: (1a) If we recall our theoretical considerations in the previous section, we may assume that broadsheets and public broadcasting are the most positive predictors among the mass media. Watching private television could even be without any positive effect on political knowledge. Based on the literature review, it is moreover reasonable to expect the Internet to have the strongest impact on knowledge gains across time, i.e. between measurements. Whether or not the Internet and perhaps weekly newsmagazines provide thorough information which also establishes structural political knowledge needs to be explored.

(1b) As Johann (2012) found that voting shares more common variance with what we call symbolic political knowledge, it may be assumed that voting increases symbolic political knowledge. On the other hand, the same author found common variance between participation that goes beyond voting and both types of political knowledge—though at least structural knowledge was more important than symbolic political knowledge with regard to party political participation. Hence, structural political knowledge should be more likely affected by conventional political action, whereas any other non-electoral political behaviour might be effective in influencing both kinds of political knowledge.

(1c) Even though the author is not aware of respective research on differential effects of participation at school and university when it comes to the prediction of symbolic versus structural political knowledge, it seems not unlikely that these kinds have stronger correlations with structural political knowledge than with symbolic knowledge. This vague hypothesis is justified by the fact that based on curricula, schools in particular intend to convey political knowledge, and apparently are more successful with respect to structural knowledge (Jennings 1996). However, there might as well be a chance to find the converse: whereas structural knowledge would be acquired through formal education at school, actually getting active could maybe support symbolic political knowledge.

In contrast to political knowledge, the analysis of political reasoning has apparently been somewhat unattended, so that predicting the effects of media exposure and political action on it is more ambiguous. Although the study of political reasoning will even be more explorative in nature because of the empirical research base, it is nevertheless suspected that (2) the ability of political reasoning might be equally influenced by both, media consumption and political participation. Certainly, third variables such as social background variables (e.g., “social capital”) and general cognitive skills or respectively age (as proxy for cognitive maturity) may be more important. Yet this second hypothesis is justified by the fact that the media depicts cases and events which may provide opportunities for critical analytical thinking,

while not necessarily promoting the acquisition of structural political knowledge.

3.2 Sample

In order to conduct the pilot study and to scrutinise those hypotheses, empirical evidence was conducted as subsidiary part of a larger project (cf. Reichert, 2013; Simon, Reichert & Grabow 2013; Simon et al. 2014) using a two-wave panel design. A first wave was conducted in March and April 2010. The sample consisted of 76 university students from the Department of Social Psychology and Political Psychology at the University of Kiel. At the department, every test subject filled in a paper-and-pencil-test answering the competence questions. Before that, all participants answered an online questionnaire about their past political activity and their intentions to engage in politics among other things. All questionnaires were written in German and all students got a special kind of credit which all of them need to complete their studies, so there should not be any motivation-based selection bias.

All participants held a German citizenship and had acquired their "Abitur" (i.e. their high-school diploma) in Germany. Students who did not fulfil these two essential criteria were excluded because the assessment referred to the German polity, i.e. knowledge that should be learned at German schools. The mean age of the respondents was 23 years ($SD = 3.60$), and most of the respondents were female (71%, one missing value). Furthermore, the families of 53% of them had lived in Germany for at least three generations (five missing values due to inconsistent information). The mean net income was around 525 Euro ($SD = 269$) per month and probably lower than the German average although variation is usually very high³.

Nine to ten months later, 41 participants of the first survey were surveyed again to get information about their political behaviour during that time and to re-measure their political knowledge. 35 students of the initial survey did not complete the second questionnaire which was provided online. Besides a few incorrect or even missing email addresses from the students, many just did not participate in the survey even though reminders were sent out. Moreover, all respondents were aware that ten of them would win 20 Euro in a raffle, and five of the quickest respondents could even win 50 Euro. Yet it is worth mentioning that there were no statistical differences in socio-demographics between the 35 students who had participated only in the first wave and the 41 panel participants, though a smaller proportion of the panel sample had participated in conventional political action before the first time of measurement compared to students who were only surveyed one time (10% vs. 29%; two-tailed $\alpha = .05$). The following section gives details about the measurement of the key variables.

3.3 Operationalization⁴

Measuring the criteria: Political competencies

In order to examine the relationships between political competencies and political media usage as well as immediate political behaviour, proper competence measures had to be used. For developing an adequate political knowledge test for university students, the works of Greve et al. (2009), Fend (1991), Ingrisich (1997), Krampen (1991; 2000), Price (1999), Schulz and Sibberns (2004), and Westle (2006) were consulted. Twelve mostly single choice items were used to measure structural political knowledge. Single choice items included three distractors and one correct answer, e.g. "What is not a responsibility of the German Bundestag?—Pass laws; assign the federal cabinet; check the government's work; elect the German chancellor"; or "If there is a change in government in one of the German federal states, for the federal government governing becomes:—More difficult if the majority of the Bundestag changes unfavourably; easier if new governing parties get into the *Bundesrat*; easier if fewer opposition parties get into the Bundestag; more difficult if the majority in the *Bundesrat* changes unfavourably". Two of the twelve items that measured structural political knowledge were open questions asking for the correct meaning of abbreviations such as "BVerfG" (the German Federal Constitutional Court).

Symbolic political knowledge was measured using two questions with unsorted/unassigned answers where all respondents had to match parties and their campaign promise(s), respectively (socio-)political organisations and corresponding representatives (e.g., matching Andrea Nahles and the Social Democratic Party to each other), which in sum made 13 matches. These two questions accordingly sum up to 13 binary items.

After data collection, every knowledge item was dichotomised⁵ (correct vs. incorrect answer)⁶ and a two-dimensional 2PL-Birnbaum model was modelled and tested (for more details see Reichert 2010). Though significantly correlated ($r = .67$, $p < .001$), this two-dimensional model proved to be adequate (Hu & Bentler 1999; Muthén, 2004). $\chi^2(274) = 278.89$ ($p = .407$), CFI = 0.99, RMSEA = 0.15, WRMR = 0.796. Therefore, two weighted indexes for symbolic (from 0 to 9.742; $M = 6.41$, $SD = 2.76$, $\alpha = .86$) and structural political knowledge (from 0 to 5.892; $M = 3.25$, $SD = 1.33$, $\alpha = .67$) were constructed.

In addition to the factual knowledge items, the students were presented three open question formats to measure political reasoning, modelled on Andreas et al. (2006) and Massing and Schattschneider (2005). For instance, one question asked for the respondents' opinion about direct political participation of citizens and a brief justification for their opinion using specific examples. Approximately one month after data collection, the answers were rated by two prospective teachers (male and female), and rerated four to six weeks later. All coder reliabilities were acceptable ($CR > .69$), but the index "political reasoning" ($\alpha = .73$) was,

however, dichotomised based on the median proportion of positive ratings due to outliers and its skew distribution ($M = 0.47$, $SD = 0.50$; the frequency refers to at least 67% positive ratings achieved according to the two raters).

As the second survey was only provided online so that the motivation to complete the entire questionnaire was harder to hold up during the test situation by the researchers, it was imperative to use a reduced number of test items. Of the panel participants, 40 students answered three items on structural knowledge in the second survey (i.e. one missing case). Two of these came from the first assessment, while the third was adopted from the German Longitudinal Election Study (e.g. Rattinger et al., 2011) asking about the importance of the votes in the German federal elections. All of them were single choice questions with three distractors and one correct answer. The index of symbolic knowledge contains six items comparable to the initial survey. In order to better deal with the small number of items and the small panel sample, panel indexes were dichotomised based on the median number of correct answers (structural knowledge: $M = 0.60$, $SD = 0.50$; symbolic knowledge: $M = 0.53$, $SD = 0.51$; frequencies refer to two or three correct answers and to six correct answers, respectively). Political reasoning could not be measured in the second survey.

Predictors (I): Political action and student participation

Due to the assumption that political competencies may differentially be affected by different kinds of political action, the students' participation in various political activities was measured according to the classification that was introduced earlier. All respondents stated whether they had voted in the German parliamentary election of 2009 (87% had) and if they had participated in conventional political activities (a dichotomised measure of the items: contacted a politician, actively supported a political party campaign, and membership in a political party; 18% had). They also indicated previous unconventional behaviour (a sum index with five items: signed a petition, distributed political leaflets, consumer boycott, participated in a legal demonstration, and participated in a citizens' initiative; $M = 1.82$, $SD = 1.31$) and whether they had participated in non-normative political protest (dichotomised measure of six items: wrote a political slogan on a public wall, participated in an illegal demonstration, blocked a road for political reasons, occupied houses or offices, participated in a violent demonstration, damaged other people's property; 25% had).

Additionally, the students were asked if they had been a member of the pupil representation ($M = 0.33$, $SD = 0.47$), class or vice-class president ($M = 0.66$, $SD = 0.48$), or if they had been engaged in a protest movement at their school ($M = 0.42$, $SD = 0.50$). Furthermore, they stated whether they had participated in elections to the student council ($M = 0.21$, $SD = 0.41$) or attended a student assembly at university ($M = 0.29$,

$SD = 0.46$). This retrospective information may allow assessing the long-term impact of participation in school as well as of activities in the current environment of the students at their university.

Information about political activities that the students engaged in between both measurements allows examining its effects on political knowledge even when controlling for initial levels of knowledge. Therefore, data about political behaviour between both surveys were also collected. In the second wave, conventional political activity was measured using four items (participation in a political committee or working group was additionally considered; 10%), but unconventional ($M = 1.54$, $SD = 1.31$) and non-normative political action (18%) were measured with the same items as in the first survey. Participants also indicated whether they had voted in political elections between the first and the second measurement (54%). However, only 13 students could answer this question because of missing opportunities to vote. Voting at time two will therefore be excluded from analyses.

Predictors (II): Political media consumption

In order to analyse the potential effects of media consumption on the acquisition of political competencies, all respondents indicated how often they follow politics in the German media (from 0 = *never* to 4 = *very often*), such as: public ($M = 1.99$, $SD = 1.05$) and private broadcasting ($M = 1.16$, $SD = 1.13$), radio ($M = 1.46$, $SD = 1.17$), tabloids ($M = 0.71$, $SD = 1.10$), broadsheets ($M = 1.14$, $SD = 1.27$), local dailies ($M = 1.12$, $SD = 1.14$), weekly newspapers and newsmagazines ($M = 1.47$, $SD = 1.34$), and the Internet ($M = 2.23$, $SD = 1.15$). Besides the mentioned variables, the four single items for the use of newspapers and both television items were combined to two respective indexes. For this purpose, the highest value (i.e. the maximum) of any newspaper item ($M = 2.15$, $SD = 1.23$) as well as of any television item ($M = 2.23$, $SD = 0.97$) was used as indicator which defined the value of the index for each person. This means that according to this measurement, for example, a student who never watched public but very often private broadcasting to gather political information would get the highest possible value of the television index (i.e. watch television very often for the purpose of gaining political information). Finally, the four single items for the use of newspapers and the two items for watching television were dichotomised (0 = *never/rarely* and 1 = *occasionally/often/very often*)—these will only be analysed as dichotomous variables due to their otherwise problematic distributions.

Further variables

Additionally, control variables were also included in the time one questionnaire. Political interest was measured using two items ($r = 0.83$, $p < .001$). "How interested are you in politics?" (from 0 = *not at all interested* to 4 = *very interested*) and "I am interested in politics." (from 0 = *not true at all* to 4 = *absolutely true*) In addition, several

socio-demographic variables were measured, such as gender, age, net income and whether a student had a migration history. Political efficacy will not be considered as it might be rather a consequence of political competence than a precursor, and because of the cross-sectional character of most of the data.

4 Results

4.1 Socio-demographic and control variables

As can be seen in table 1⁷, older participants show higher structural political knowledge at the second measurement than younger participants. Gender is constantly a significant correlate of both kinds of political knowledge, i.e. male participants have higher political knowledge. The income of study participants and whether or not a student has a migration history is not correlated with any of the competence variables. Older participants have also higher incomes (no table).

Political interest is at least moderately and significantly correlated with all competence variables (Table 1), and male respondents are more interested in politics compared to female respondents (no table).

Table 1: Bivariate correlations between political competencies and control variables

| | Criteria at t_1 | | | Criteria at t_2 | |
|----------------------------|----------------------|--------------------|---------------------|----------------------|--------------------|
| | Structural Knowledge | Symbolic Knowledge | Political Reasoning | Structural Knowledge | Symbolic Knowledge |
| Age | .07 | .11 | -.16 | .42 [¶] | .22 |
| Gender (female/male) | .31 [†] | .46 [‡] | .11 | .34 [¶] | .34 [¶] |
| Income | .07 | .14 | .05 | .29 | -.02 |
| Migration history (no/yes) | .03 | -.02 | .00 | -.02 | -.08 |
| Political interest | .41 [‡] | .45 [‡] | .45 [‡] | .35 [¶] | .49 [‡] |

Note: Significant correlations are denoted as follows:
‡: $p \leq .001$, †: $p \leq .01$, ¶: $p \leq .05$.

Considering the predictor variables of interest, significant correlations with socio-demographic and control variables will also be mentioned (two-tailed $\alpha = .05$; no table). Among the students that were surveyed, a migration history is positively correlated with watching political news on public television, and income correlates positively with participation in elections to the student council at university. Age has positive coefficients with respect to non-normative political participation before the first measurement and with participation in elections to the student council at university. Male students are more likely to follow political news in newspapers—particularly in broadsheets—and on the Internet. Furthermore, male respondents more often participate in conventional political activities, both before time one and between both measurements.

Political interest is positively correlated with several variables: using newspapers (except local papers), television (particularly public broadcasting) and the

Internet; political action (except non-normative behaviour); and every kind of participation at school and attendance of a student assembly at university. Hence, political interest and gender will be included as control variables in multiple analyses for the prediction of those criteria that were measured at time one⁸.

Regarding multiple analyses for criteria of the second measurement, however, it will only be controlled for the respective knowledge index from the first measurement. This means that it will only be controlled for symbolic knowledge measured at time one when predicting symbolic knowledge measured in the second survey; and it will only be controlled for structural knowledge measured at time one when predicting structural knowledge measured in the second survey, but neither gender nor political interest will be included. Due to the small sample size for the panel analyses, this seems to be the most appropriate way, as this implicates that *changes* in political knowledge will be explained while controlling for the “initial” level of knowledge.

4.2 Past political activity as a predictor of political competence

We will begin our analyses with political action as a potential cause of the political competencies of the study participants. By looking at Table 2 and cross-sectional correlations, one can see that structural political knowledge at time one is higher if respondents had participated in the 2009 election, in unconventional political action or in non-normative activities before the first survey, though sometimes only marginally significant coefficients emerge. Symbolic political knowledge and voting as well share a marginally significant, positive correlation. However, those students who engaged in conventional political action perform better in political reasoning.

Regarding the second measurement, we again find primarily positive correlations. Study participants who say that they engaged in conventional political action between both surveys more often answer all symbolic knowledge questions at time two correctly. This relationship is only marginally significant for structural political knowledge which we would have expected to be vice versa. Marginally significant correlations also exist between symbolic political knowledge at time two and conventional political participation before the first survey.

Although no other significant correlation indicates that political competence might be a consequence of political action among the study participants, coefficients for correlations between political competencies and political participation during both measurements give some indication that political competencies may more likely be causes of political action (compare also Reichert 2010 who modelled these competencies as predictors of political action). This suggestion is also backed by many significant correlations between political competence measured in the first survey and subsequent conventional and unconventional political behaviour which are

presented in shaded cells in table 2. Hence, empirical evidence suggests that here the effect of political action on political knowledge is less strong than vice versa so that in our study the causal relationship may be reversed in contrast to our expectation.

Table 2: Bivariate correlations between political competencies and political activities

| | | Criteria at t_1 | | | Criteria at t_2 | |
|---------------------|-----------------------------------|----------------------|--------------------|---------------------|----------------------|--------------------|
| | | Structural Knowledge | Symbolic Knowledge | Political Reasoning | Structural Knowledge | Symbolic Knowledge |
| Predictors at t_1 | Voting in general election (2009) | .24 [¶] | .20 [♦] | -.11 | -.05 | .12 |
| | Conventional participation | .18 | .14 | .24 [¶] | .11 | .31 [♦] |
| | Unconventional participation | .21 [♦] | .11 | .17 | .05 | .10 |
| | Non-normative participation | .19 [♦] | .14 | .12 | .05 | .03 |
| Predictors at t_2 | Conventional participation | .37 [¶] | .33 [¶] | .37 [¶] | .27 [♦] | .32 [¶] |
| | Unconventional participation | .32 [¶] | .10 | .25 | .12 | -.00 |
| | Non-normative participation | .07 | .11 | .14 | .11 | -.09 |

Note: Significant correlations are denoted as follows:
[‡]: $p \leq .001$, [†]: $p \leq .01$, [¶]: $p \leq .05$, [♦]: $p \leq .10$.

In the following, several multiple linear regression analyses for knowledge indexes measured at time one are conducted. The procedure is as follows and will be repeated for subsequent regression analyses: Firstly, for each single potential predictor of political participation measured at time one, a separate model using only the predictor variable itself, i.e. the respective kind of political action, and the control variables gender and political interest is calculated for each of the two political knowledge indexes. This implicates that four “first models” are conducted for each of the criteria, each of the models controlling for gender and political interest: one for the predictor voting in the regression for structural political knowledge, one for the predictor conventional political action regarding structural knowledge, one for unconventional regarding structural knowledge and one for non-normative participation regarding structural knowledge; and the same four models are conducted regarding the criterion symbolic political knowledge. Interestingly, neither of the behavioural predictor variables yields significance. Political interest is always a positive predictor of the knowledge indexes ($\beta \geq .34$, $t \geq 2.69$, $p \leq .009$). Gender also yields significant coefficients with respect to symbolic political knowledge ($\beta \geq .32$, $t \geq 3.02$, $p \leq .004$), indicating that male respondents are more knowledgeable than female respondents. These patterns are confirmed in our second models when all four behavioural predictor variables and the two controls are included at once for each of the criteria. Hence, against our assumption neither way of

the respondents’ political behaviour does predict their political knowledge of any kind.

The same procedure applies to political reasoning using logistic regression analysis which is appropriate for dichotomous outcomes. In the first models which regress political reasoning on gender, political interest and each kind of political action in four separate analyses—one for each key predictor—, voting is a marginally significant, negative predictor of political reasoning ($OR = 0.22$, $Wald = 3.38$, $p = .066$). In contrast, political interest predicts higher chances in political reasoning ($OR = 3.60$, $Wald = 9.40$, $p = .002$; $R_{Nagelkerke} = .228$). Political interest is the only significant predictor in any of the other separately conducted analyses of model one ($OR \geq 2.05$, $Wald \geq 6.29$, $p \leq .012$). In model two we include all four behavioural predictors at once together with gender and political interest. As the mentioned patterns do not change, a third, economic and final model is conducted which only considers the predictor and control variables that previously were found to be significant in at least one of the models for political reasoning. Therefore, political interest ($OR = 2.66$, $Wald = 10.57$, $p = .001$) and voting ($OR = 0.21$, $Wald = 3.55$, $p = .060$) remain as sole predictors in the final model ($R_{Nagelkerke} = .231$). Thus we do find some evidence that political behaviour—namely voting—is relevant in the prediction of political reasoning.

When looking at the analyses for the criteria of the second survey, we always calculate only one model for each predictor which includes only two variables due to the small panel sample: These are one behavioural predictor variable and the political knowledge index measured at time one which corresponds to the respective knowledge criterion we want to predict at time two. For instance, if we want to predict the structural political knowledge of our respondents in the second survey by conventional political action between both surveys, we include the two predictors conventional action between both surveys as measured at time two and structural political knowledge measured in the first survey as baseline level of structural knowledge so to speak. However, none of the behavioural variables that were measured at time one is a significant predictor of knowledge at time two when controlling for the knowledge variables measured in the first survey in neither model, but the knowledge variables. The results for the political action predictors measured at time two are also not worth mentioning.

4.3 Participation in school and at university: predictors of political competence?

In the previous section, we found only scarce evidence that political behaviour is a proper predictor of political competence, so now we want to have a look at behaviour that is considered in civic education as well, but not particularly political in its character. It is often said that participation at school and as a student might facilitate civic and political competencies, so what do we find in our sample? –

Table 3 gives the bivariate correlations between political competencies and participation in school and at university. Respondents who formerly participated in a pupil representation at school score higher on structural political knowledge. Structural knowledge is also slightly higher for those respondents who were (vice-)class presidents at school or who participated in a school protest movement (marginally significant coefficients). However, among the study participants none of these three activities correlates significantly with any of the other political competence variables that were measured in this study. Thus, although we find a first hint for our hypothesis that participation at school increases structural political knowledge according to the cross-sectional correlations, we find no evidence for a significant long-term effect.

Table 3: Correlations between political competencies and participation in school/at university

| | | Criteria at t_1 | | | Criteria at t_2 | |
|------------|---|----------------------|--------------------|---------------------|----------------------|--------------------|
| | | Structural Knowledge | Symbolic Knowledge | Political Reasoning | Structural Knowledge | Symbolic Knowledge |
| School | Member of pupil representation | .25 [¶] | .19 | .18 | -.15 | -.04 |
| | (Vice-)Class president | .20 [*] | .09 | -.09 | -.24 | -.13 |
| | Participation in school protest movement | .19 [*] | .18 | .10 | .21 | .12 |
| University | Participation in elections to student council | .21 [*] | .29 [¶] | .17 | .33 [¶] | .39 [¶] |
| | Attendance of a student assembly | .14 | .01 | -.02 | .10 | -.05 |

Note: Significant correlations are denoted as follows:
‡: $p \leq .001$, †: $p \leq .01$, ¶: $p \leq .05$, ♦: $p \leq .10$.

However, somewhat surprisingly in this study students who participated in elections to the student council at university before the first survey took place consistently give more correct answers to the questions on political knowledge. This refers to both times of measurement, even though the correlation regarding structural political knowledge at time one is only marginally significant. The attendance of a student assembly is, however, uncorrelated with all competence variables among the respondents.

Again, for multiple analyses several models are calculated: The first models for criteria measured at time one include gender, political interest and always one of the key behavioural predictor variables, which makes three first models for each competence criterion when we look at the impact of participation at school. In the second models, all school participation variables are included together with gender and political interest. However, when controlling for gender and political interest, none of the school variables of interest is a significant predictor of political knowledge of any kind in

this sample. As already seen in previous analyses of this study, male gender is a positive predictor of symbolic political knowledge ($\beta \geq .34$, $t \geq 3.24$, $p \leq .002$), and political interest consistently is a significant and positive predictor of both knowledge indexes measured in the first survey ($\beta \geq .33$, $t \geq 2.83$, $p \leq .006$).

When these analyses are repeated for each participation variable at university, we get similar results. However, participation in elections to the student council increases symbolic political knowledge of the respondents. The final model thus contains participation in elections to the student council ($\beta = .21$, $t = 2.09$, $p = .040$), gender ($\beta = .32$, $t = 3.15$, $p = .002$) and political interest ($\beta = .31$, $t = 2.98$, $p = .004$) as relevant predictors of symbolic political knowledge ($R^2 = .355$).

With respect to political reasoning, the pattern for participation at school is quite interesting, while that one for participation at university is not worth mentioning. When calculating the previously mentioned first models separately for the criterion political reasoning, political interest appears as a significant and positive predictor ($OR \geq 2.14$, $Wald \geq 7.14$, $p \leq .008$). However, having been a president or vice-president of one's class in school ($OR = 0.38$, $Wald = 2.84$, $p = .092$) yields marginal significance ($R_{Nagelkerke} = .223$). If all school participation variables are included at the same time in the second model, this model is significant, as is also the variable member of the pupil representation. Thus, the final model includes only variables that were significant in one of the previously conducted models: the significant and positive predictor member of the pupil representation ($OR = 3.62$, $Wald = 3.91$, $p = .048$), the negative predictor (vice-)class president ($OR = 0.18$, $Wald = 5.92$, $p = .015$) as well as political interest ($OR = 2.63$, $Wald = 10.00$, $p = .002$), of course ($R_{Nagelkerke} = .286$). Participation at school indeed seems to have an effect on the respondents' ability of political reasoning, but only if we account for political interest.

In the analyses for the criteria of political knowledge measured in 2011, we predict each of the two knowledge indexes separately by each of the key predictor variables controlling only for structural political knowledge at time one if we want to predict structural knowledge at time two, and controlling for symbolic political knowledge as measured in the first survey when predicting symbolic political knowledge in 2011, respectively. We find that having been a (vice-)class president in school predicts low structural political knowledge in the long run (Table 4). The same is true for having been a member of the pupil representation at school. However, if both are included together in a final model, then only having been a (vice-)class president remains a marginally significant predictor of structural knowledge among our respondents. The same procedure with participation at university yields only significant coefficients for the control variable, political knowledge measured at time one. Again, the initial level of political knowledge is the best predictor of subsequent political knowledge.

Table 4: Logistic regression for structural political knowledge (t_2) on participation in school

| | Structural Political Knowledge (t_2) | | | | | |
|--|--|------|-------------------|------|-------------------|------|
| | OR | Wald | OR | Wald | OR | Wald |
| Member of pupil "representation" | 0.14 [¶] | 4.14 | – | – | 0.27 | 1.61 |
| (Vice-)Class president | – | – | 0.11 [¶] | 4.95 | 0.17 [♦] | 2.72 |
| Structural political knowledge (t_1) | 2.92 [‡] | 7.81 | 2.72 [‡] | 7.99 | 3.24 [‡] | 8.66 |
| $R_{Nagelkerke}$ | .349 | | .381 | | .423 | |

Note: Significant Odds Ratios are denoted as follows:
‡: $p \leq .001$, †: $p \leq .01$, ¶: $p \leq .05$, ♦: $p \leq .10$.

4.4 Media consumption as a predictor of political competence

The media takes a special role in the prediction of political competence, because it can be used purposefully in classrooms as well as outside school. Political media consumption may at any rate be considered to be some sort of political participation. So do the media and the images it provides increase rather symbolic than structural political knowledge? Is there a substantial difference among broadsheets and tabloids or between public versus private broadcasting?—In the present study, the use of newspapers and the Internet correlate positively with both knowledge indexes at time one, though only marginally for structural knowledge and newspapers (Table 5). A closer look reveals that significant results for newspapers at time one are probably due to the aggregation of single items on reading newspapers for the purpose of political information. One exemption is political reasoning, which is higher for respondents who read broadsheet as well as weekly newspapers.

Except a significant and positive correlation between symbolic knowledge and newspapers, which probably arises from the use of tabloids, as well as a marginally significant and negative correlation between structural knowledge and television, which is due to watching private broadcasting, none of the indexes of media consumption yields a significant correlation with any of the political knowledge indexes at time two. However, the correlation for reading tabloids with symbolic political knowledge, already of moderate strength at the first measurement, gains significance at time two.

Table 5: Bivariate correlations between political competencies and media consumption

| | Criteria at t_1 | | | Criteria at t_2 | |
|----------------------|----------------------|--------------------|---------------------|----------------------|--------------------|
| | Structural Knowledge | Symbolic Knowledge | Political Reasoning | Structural Knowledge | Symbolic Knowledge |
| Newspapers | .20 [♦] | .29 [¶] | .22 | –.16 | .39 [¶] |
| Tabloids | –.07 | –.00 | .33 | –.17 | .52 [¶] |
| Broadsheets | .02 | .18 | .44 [‡] | .28 | .28 |
| Local dailies | .08 | .01 | –.26 | –.15 | .08 |
| Weeklies | .14 | .12 | .29 [♦] | –.10 | .30 |
| Television | –.02 | .03 | .00 | –.35 [♦] | –.21 |
| Public broadcasting | .01 | .20 [♦] | –.08 | –.08 | .15 |
| Private broadcasting | –.31 [‡] | –.44 [‡] | –.06 | –.62 [‡] | –.31 |
| Radio | –.03 | –.08 | .23 [♦] | .14 | –.27 |
| Internet | .33 [‡] | .34 [‡] | .20 | .21 | .01 |

Note: Significant correlations are denoted as follows:
‡: $p \leq .001$, †: $p \leq .01$, ¶: $p \leq .05$, ♦: $p \leq .10$.

The present insignificance of watching television—except the already mentioned marginally significant, negative correlation with structural knowledge at time two—is apparently caused by putting together public and private broadcasting: for the students under investigation, both variables tend to have converse algebraic signs. Among the respondents, consuming political information via private broadcasting obviously results in less political knowledge of any kind. For structural political knowledge, this relation even holds in the panel analysis. Public broadcasting seems to be without an effect on the political competencies of the study participants, though a trend exists according to which those respondents who watch political news on public television perform better regarding symbolic political knowledge.

In sum, yet there is only marginal evidence that the respondents' symbolic political knowledge but not their structural knowledge is affected by the mass media. Correlations with specific types of newspapers do not yet really support our assumption either, even though we find differences between tabloids and broadsheets as well as between public versus private broadcasting that to some extent can be reinterpreted in favour of the hypothesis in that private broadcasting is negative for political knowledge.

Multiple regression analyses yield similar results to those conducted in the previous sections. The first models include three predictor variables: gender, political interest and for each political knowledge variable measured in 2010 as a criterion also one key predictor, i.e. one model also includes the use of newspapers, another model the use of television, one the radio and the last model one accounts for the Internet. All models only result in the consistent positive significance of political interest ($\beta_s \geq .33$, $t_s \geq 2.58$, $p_s \leq .012$), as well as in higher symbolic political knowledge among male respondents ($\beta_s \geq .31$, $t_s \geq 2.97$,

$p \leq .004$). The second models regress the respective knowledge indexes on all four media variables, gender and political interest, but the mentioned pattern does not change.

When looking at the *indicators* of reading political newspapers (tabloids, broadsheets, local dailies, weeklies) which are all included at the same time in an additional analysis controlling for gender and political interest, no interesting result appears in the cross-sectional analyses for time one. However, when political knowledge is regressed on both *indicators* of television and the two control variables, we find that watching political news on private television significantly decreases the political knowledge of the study participants, and primarily symbolic political knowledge (Table 6).

Table 6: Linear regression for political knowledge (t_1) on television

| | Structural Political Knowledge | | Symbolic Political Knowledge | |
|----------------------|--------------------------------|-------|------------------------------|-------|
| | β | t | β | t |
| Public broadcasting | -.13 | -1.24 | .07 | 0.78 |
| Private broadcasting | -.21 [♦] | -1.98 | -.31 [†] | -3.34 |
| Political interest | .39 [†] | 3.39 | .31 [†] | 3.07 |
| Gender (female/male) | .13 | 1.17 | .28 [†] | 2.84 |
| R^2 | .275 | | .429 | |

Note: Standardised coefficients; significant coefficients are denoted as follows: [‡]: $p \leq .001$, [†]: $p \leq .01$, [¶]: $p \leq .05$, [♦]: $p \leq .10$.

Neither index variable in any of the models conducted in the same vein as above is able to predict the political reasoning of the students that were surveyed, except political interest ($OR \geq 1.97$, $Wald \geq 5.61$, $p \leq .018$). However, by looking at the four *indicators* of reading newspapers which are again altogether introduced in an additional model, it appears that local newspapers as well as broadsheets are significant predictors of political reasoning among respondents, even if the control variables gender and political interest are included. When excluding all insignificant predictors from this model, local dailies still predict a low ability of political reasoning ($OR = 0.27$, $Wald = 4.79$, $p = .029$), while those respondents who read broadsheets tend to gain a higher ability of political reasoning ($OR = 3.12$, $Wald = 3.74$, $p = .053$). Political interest predicts a high ability of political reasoning of the study participants ($OR = 2.11$, $Wald = 6.37$, $p = .012$; $R_{Nagelkerke} = .279$). Hence, broadsheets that are meant to be more thorough in their reports increase political reasoning, which we would perhaps have expected, even though the negative effect of local daily newspapers is insofar surprising as we do not find a similar result for tabloids which we might expect to be more superficial than local dailies.

With respect to political knowledge measured at time two, only one analysis is worth mentioning: respondents

who watch political news on private broadcastings ($OR = 0.21$, $Wald = 3.84$, $p < .050$) have lower structural political knowledge, while structural knowledge from time one ($OR = 1.80$, $Wald = 3.56$, $p = .059$) tends to yield higher political knowledge across time. Public broadcasting does not have an effect on the respondents' knowledge ($OR = 0.66$, $Wald = 0.24$, $p = .621$) ($R_{Nagelkerke} = .328$). This result is at least somewhat congruent with our assumption that political knowledge would not be improved by the use of private television.

4.5 Comparative summary

In summary, it seems that political action is more likely to be a consequence rather than a precursor of political competencies among the study participants. In the present sample, voting correlates with structural political knowledge, and conventional political action correlates with symbolic political knowledge in the second survey. There is, however, no indication that political action increases levels of political knowledge among respondents when accounting for control variables, which is not in support of our hypothesis.

Although having been a member of the pupil representation correlates positively with structural political knowledge in the first survey, together with the variable (vice-)class president it apparently reduces the structural political knowledge of the students that were surveyed in the long run. This is surprising since we expected the reverse pattern, i.e. we assumed schools to facilitate structural political knowledge. Although we already mentioned that formal learning in the classroom and active behaviour might have differential effects on variants of political knowledge. Participation in the elections to the student council at university increases the symbolic political knowledge of the respondents, but not their structural knowledge if we control for other variables.

With regard to the media consumption of the respondents, it is clear that watching political news on private broadcasting yields lower levels of political knowledge, particularly symbolic knowledge. We would not have expected that, though we also find a decrease in structural political knowledge in the long run. Significant bivariate correlations between the use of the Internet and both knowledge indexes at time one, as well as between reading newspapers (overall index) and symbolic knowledge in the first survey do not withstand if controls are considered.

As a consequence of these results, comparative analyses are conducted for symbolic political knowledge at time one in which symbolic knowledge is modelled on all variables that yielded significant regression coefficients in any of the analyses presented in the previous sections. These further analyses emphasize the importance of private broadcasting for reducing the symbolic knowledge of the study participants. As only watching private television remains a significant key predictor ($\beta = -.32$, $t = -3.38$, $p = .001$) when gender ($\beta = .27$,

$t = 2.80, p = .007$) and political interest ($\beta = .33, t = 3.41, p = .001$) are included into the analysis, the final model exists of three predictors ($R^2 = .424$).

The same applies to structural political knowledge. The final model includes the use of private broadcasting for political information ($\beta = -.24, t = -2.26, p = .027$) and political interest ($\beta = .38, t = 3.66, p < .001$) as significant predictors ($R^2 = .237$). No comparative analysis is conducted for the knowledge indexes of the second survey.

With regard to the political reasoning of the respondents, we have found that having voted and having been a (vice-)class president in school have negative effects, while former members of the pupil representation show a high ability of political reasoning. The role of their past conventional political participation is also positive, but not when controlling for other variables. Reading broadsheets also yields a higher level of political reasoning among the students surveyed, while reading local newspapers tends to affect this ability negatively.

Table 7: Overall logistic regression for political reasoning (t_1)

| | Model I | | Model II | | Model III | |
|-----------------------------------|-------------------|------|-------------------|------|-------------------|------|
| | OR | Wald | OR | Wald | OR | Wald |
| Voting in general election (2009) | 0.75 | 0.12 | 0.39 | 0.96 | | |
| Conventional participation | 5.33 [¶] | 4.75 | 3.19 | 2.18 | | |
| Member of pupil "representation" | 5.38 [¶] | 4.88 | 4.68 [¶] | 4.03 | 4.08 [♦] | 3.80 |
| (Vice-)Class president | 0.17 [¶] | 5.51 | 0.15 [¶] | 5.49 | 0.15 [¶] | 6.28 |
| Broadsheets | 5.06 [†] | 7.10 | 3.45 [♦] | 3.68 | 3.28 [♦] | 3.45 |
| Local dailies | 0.36 [♦] | 2.70 | 0.31 [♦] | 3.13 | 0.31 [♦] | 3.52 |
| Political interest | | | 2.20 [¶] | 4.58 | 2.73 [¶] | 6.27 |
| $R_{Nagelkerke}$ | .359 | | .424 | | .490 | |

Note: Standardised coefficients; significant coefficients are denoted as follows: [‡]: $p \leq .001$, [†]: $p \leq .01$, [¶]: $p \leq .05$, [♦]: $p \leq .10$.

Hence, all these variables are included in an overall first model which aims to compare the effects of the just mentioned variables, in which only voting is not at least a marginally significant predictor of political reasoning (Table 7). In a second model, it is also accounted for political interest as this has consistently proven to be significant in the prediction of political reasoning. As a consequence, neither voting nor conventional political action are significantly related to the criterion. Therefore, both variables are excluded in a third and final model. This shows that political interest increases chances for higher political reasoning of the respondents. Two more variables are positive predictors of their ability

of political reasoning, though only with marginal significance: member of the pupil representation at school as well as reading political news in broadsheets. Having been either class or vice-class president at school reduces chances for high political reasoning among the respondents when controlling for other variables, as well as reading local newspapers does at the significance level $\alpha = .10$. This again supports the previously reported interpretation that *political* behaviour is probably rather a consequence of political competence than vice versa.

5 Discussion and outlook

This paper aimed to analyse the influence of political participation in a wider understanding, i.e. including political media consumption and past activities at school and university, on different kinds of political knowledge and on political reasoning. The study reported here seeks to be a pilot study to identify variables that should be considered in future civic education research and wants to explore possible correlations between the just mentioned key variables. This comprises the question whether the media or active political participation are more important in the prediction of political knowledge and of the ability of political reasoning. Which requirements and challenges for subsequent studies have been identified? – Now let us have a look at how the results relate to the hypotheses of this study first.

5.1 Interpretation with reference to the hypotheses

We assumed that primarily structural political knowledge would be achieved by active political participation (1b). Specifically, it was assumed that voting increases symbolic political knowledge whereas structural knowledge might be more important with regard to party political participation. There were no specific assumptions related to the ability of political reasoning, although this competence was hypothesized to be equally influenced by both, media consumption and political participation (2). However, the findings indicate that at least political participation does not affect political knowledge and political reasoning among the study participants when we control for political interest. Although voting and structural political knowledge correlate significantly, as conventional political action correlates with political reasoning and symbolic political knowledge—exactly the opposite of our expectation—, it is more likely that these political competencies motivate the political participation of the respondents, in particular conventional action. Part of our first hypothesis (1b), thus, could not be validated. Future research should focus on the prediction of specific kinds of political action by political knowledge and examine the long-term relationship between both kinds of political knowledge and the four kinds of political action: maybe voting behaviour is predicted by symbolic political knowledge but increases structural knowledge afterwards, and conventional participation can be explained by structural political knowledge though improving the level of symbolic knowledge?

It was also expected that participation at school or university might be positive for structural political knowledge (1c). This was justified by the role schools play in formal civic education, but there was also a plausible justification for the counterhypothesis that structural knowledge would primarily be acquired through school lessons, whereas actually getting active could support symbolic political knowledge. What we find is, firstly, that participation in school and at university seems to influence the political competencies of the students under investigation. At least bivariate analyses support the hypothesis that participation in school is positive for structural political knowledge. Conversely, having been a (vice-)class president at school predicts a low level of structural political knowledge in the second survey. This might be the case because these students started on a higher level of structural knowledge, but they are forgetting things about political structures so that their level of knowledge will become more equal to that of people who had not been a (vice-)class president in school. Participation in elections to the student council at university is positively related with both knowledge indexes in this study, though it does not predict increases in the second survey.

Since it is easier to achieve symbolic political knowledge by just absorbing political information by accident, e.g., when watching television or listening to the radio, we also assumed the media primarily to influence symbolic political knowledge positively (1a). In particular, we expected that broadsheets and public broadcasting would be the most positive predictors among the mass media, while we were not certain if watching private television might even be without any positive effect on political knowledge. The Internet was hypothesized to have the strongest impact on knowledge gains between both surveys.

Although this hypothesis is falsified in many instances, we nevertheless find some indication for it. In bivariate analyses, the symbolic political knowledge of the respondents is positively and significantly correlated with newspaper consumption, watching political news on public broadcasting and using the Internet. However, the Internet is also significantly and positively correlated with their structural political knowledge. A somewhat unexpected finding is, however, the negative effect of private broadcasting on the students' political knowledge, even though we were ready to find zero effect. This is the only type of media consumption which stays significant in multiple analyses; and especially the finding that watching political news on commercial television reduces the chances of the respondents for gaining much structural political knowledge over time when we control for other variables is staggering. This might be interpreted in terms of the hypothesis only in that the negative effect persists merely with regard to the structural political knowledge of the respondents. Hence, those students who watch less political news on commercial television have better chances to gain higher structural political knowledge.

These are important findings as they may hint at media which could possibly be used efficiently in civics classes at school. Although our evidence is not yet conclusive, civics teachers may probably be advised carefully to choose the media they want to use for educational purposes in their classes. We must not conclude that every program on screen is "good" versus "bad" for educational purposes if it is a public versus private broadcasting program, and we may expect that teachers do always select the media they use at school very carefully. They might nevertheless be more thoughtful if they want to show programs coming from commercial television, and they would perhaps decide in favour of broadsheets compared to other newspapers (but see also below), though the teacher's didactical skills and efforts may in any case be more important than the distinction between one specific medium versus another. Finally, the Internet seems to provide a potential for facilitating political competencies, but here more research about the specific methods of usage that may help establishing those skills is needed and probably proper strategies for adequate uses of the Internet in support of political competencies need to be developed.

The second hypothesis is not fully falsified. Although it was less precise in its prediction, there is in fact rather supporting evidence for it. While political action is more likely to be a consequence of the respondents' political reasoning, multiple analyses show that participation as a pupil in school affects their reasoning ability. Whereas study participants who had been (vice-)class president in school have a lower ability of political reasoning, those who were a member of the pupil representation tend to achieve a higher ability. It is possible that those activities facilitate political reasoning skills due to a higher need to justify one's position reasonably in a pupil representation.

Furthermore, respondents who read broadsheets are more likely to achieve a high level of political reasoning, whereas readers of local daily newspapers tend to underperform with respect to political reasoning in this study. These findings hold even when controlling for political interest. The first we would probably ascribe to potentially thorough analyses and possibly more balanced discussions of politics that students can find in broadsheets. The negative effect of local newspapers is surprising, but could perhaps be attributed to the fact that those papers may be more likely to report about local events and local politics, of which the latter was not appropriately measured in the present study. Students' focus on their local environment and the consumption of local newspapers might lead to proper knowledge about local politics and, thus, be underestimated in this study. It is also worth mentioning that political reasoning is the only criterion which does not at least marginally significantly correlate with the Internet usage of the respondents, but marginally significant and positive bivariate correlations exist between political reasoning and two other media, i.e. the consumption of political news via radio and by reading weekly newspapers and/or weekly

newsmagazines. In any case, results are more balanced for the political reasoning of the surveyed people compared with their political knowledge. Hence, we may conclude that the second hypothesis is supported and that it is important to measure student participation and their media consumption.

5.2 Limitations

Besides these interpretations, there are some constraints which need to be considered when assessing the significance of our pilot study. First of all, not all hypotheses were affirmed. A reason for this could emerge from third variables which apparently are more important than those considered in this study. These third variables might, for instance, include familial socialization, social relationships and networks as well as general cognitive skills. Political interest is a significant and positive predictor of any political competence, and male gender also affects the symbolic political knowledge of the respondents positively. This in conjunction with the relatively small sample makes it hard for bivariate correlations—which we do in fact find—to persist. It is reasonable to assume that political interest might be a precondition for political action as well as political media consumption if we consider the literature on increasing political knowledge gaps caused by differential media usage (e.g., Gibson & McAllister, 2011; Wei & Hindman, 2011). Therefore, it is not surprising that significant bivariate relationships do not often persist in multiple analyses. The more meaningful are predictors that we found to be important even under control of political interest given the rather weak statistical power.

One constraint of the present study certainly is the small sample, particularly the small panel sample. As a consequence, some variables had to be dichotomised due to non-normal distributions. Dichotomisation might, however, yield other constrictions. In bivariate analyses, the application of adequate correlation techniques helped to deal with this limitation, and appropriate multiple techniques were applied, too. A larger sample with normally distributed variables that do not need dichotomisation would nevertheless be an improvement in future research. In particular with regard to panel analyses, a larger sample would also enable us to evaluate the net effect of political participation on political knowledge. This would also help to disentangle the mentioned spiral effect, where for instance symbolic political knowledge might increase the likelihood that people cast a ballot in a political election and in turn does affect their structural political knowledge indirectly, which then might increase the likelihood that they participate in conventional political action and so on. Moreover, a larger sample could cover a more diverse group of study participants instead of surveying only university students.

Another restriction probably comes directly from the measurement of media consumption. Instead of asking for “verbal” categories, future research will use “numeric” categories that allow not only for better

interpretations of responses, but also for a theoretically (and empirically) driven aggregation of categories. For example, it could be asked for the amount someone spends on watching news on television per day, or we might ask about how many days in a week people read about politics in newspapers. This will probably ease dealing with problematic distributions.

5.3 Outlook and conclusion

The current study aimed to get insights in possible relationships between political competencies, especially political knowledge, and its possible precursors political action and political media consumption. It shows that longitudinal studies are important to examine the causal relationship between political competence and political behaviour and that it might be helpful to distinguish between differential effects of different kinds of political behaviour in the prediction of structural and symbolic political knowledge. In addition, it also suggests that future research should be aware that media are diverse, even television or newspapers may require differentiated consideration: public television can yield different effects than private broadcasting, and tabloids might not have the same importance for political knowledge as broadsheets do. Consequently, our first conclusion would be that we should precisely measure in which ways people participate in political action and which media outlets they use. Moreover, we might even think of asking respondents if they actively seek political information or if they just consumed political information by accident and without intention to do so. Our results also indicate that at least with regard to political reasoning versus political knowledge, we will probably find differential effects of various predictor variables. As we found somewhat unexpected correlations between voting and structural political knowledge on the one hand, and between conventional participation and symbolic knowledge on the other hand, it is also reasonable trying better to understand the relationships between different facets of political knowledge and political activities and their interplay. This is a question which needs to be answered.

The author’s future research will, of course, rely on a larger sample, but the measurement of the extent of political media consumption will be modified as well. This particularly concerns the value labels used for measuring the frequency of media usage. Asking for the amount someone spends on consuming political news or how many days in a week people read or watch about politics is apparently much more meaningful than only asking for verbal responses such as “often”, “very often” etc. It is furthermore necessary to extend this research to a more comprehensive or at least different population. Here we were interested in the effects on highly educated people which may explain some unexpected findings; but will these results hold if we include people who do not go to university? This is by no means unlikely as education usually increases the likelihood of a person to be politically active and which also means these

people achieve higher levels of political knowledge (e.g., Galston, 2001; Mayer, 2011).

Recalling the rather insignificant role of the radio as a source of political knowledge in our study, we may even address another recent measurement issue: Symbolic political knowledge can probably be measured using facial recognition techniques where respondents are shown pictures of politicians and have to state their names (e.g., Wiegand, 2013). This would also be possible with campaign slogans or campaign posters and perhaps improve the measurement of symbolic knowledge considerably, not to speak of the variation in survey format which may be a welcome diversion for study participants when completing a questionnaire.

Eventually, we must not conclude that every television program is “good” for educational purposes if it is on public broadcasting, or “bad” for political education if it is on private television. We sure can expect that teachers do always select the media they use in their classes well-thought-out. In general, they might prefer some media against others, but in the classroom their didactical skills and efforts are probably more important than the mere distinction between specific types of media. We also found the Internet to have a potential for facilitating political competencies, but here more research and the development of proper strategies for adequate uses of the Internet in support of political competencies are needed.

To sum up this study, political action is probably rather a consequence than a condition of political competencies, though the interplay between various political activities, symbolic as well as structural knowledge need to be disentangled in a larger longitudinally designed study. Active involvement in school and participation at university are important in the prediction of political competencies—particularly pupil representations, student parliaments etc. seem to be helpful in order to raise profound political competencies. These effects may decline the more time passes since students have left school, but the retrospective information about past participation at school needs to be considered. Schools do not only convey political knowledge in civics lessons, they also help facilitating political competence by supporting student participation. As every democratic society needs a politically competent and engaged citizenry, further research needs to determine how the provision of political action opportunities can also help to raise the levels of political knowledge and reasoning.

The mass media do also play a role in the acquisition of political competencies, but we need carefully to decide how we want to measure the frequency or amount of political media consumption. Moreover, it comes without surprise that the kind of media and the medium have to be considered. Apparently, commercial broadcasting might inhibit political knowledge acquisition; newspapers are still very likely to be important factors in the acquirement of political competencies; radio may perhaps be disregarded—even though it is not just music—and, thus, allow the use of new formats to measure

political knowledge; and the Internet needs further attention. There is much more to consider when analysing media impacts in the future and finding methods how to reduce political knowledge gaps. Here the Internet is particularly important as it provides a mixture of all other media and allows people easily to *get active*: TV as well as radio recordings; online releases of the print versions of newspapers; online news-magazines; websites of politicians, political parties and institutions; interactive blogs; and even more.

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Endnotes

- ¹ This concept refers back to the label "surveillance facts" introduced by Delli Carpini and Keeter (1991) which is based on the observation that "ongoing events and new political developments [...] are more changeable and require monitoring, especially through the use of mass media and personal interaction" (Jennings 1996, p. 229).
- ² Adding to that, the patterns for answers that are wrong, correct, or unknown vary depending on gender (e.g., Vetter/Maier 2005; Westle 2005; 2013). Furthermore, compared to men, women are less knowledgeable with regard to "conventional" political knowledge, but they gain better results than men in the policy dimension (Stolle/Gidengil 2010).
- ³ According to the 19th Social Survey of the *Deutsche Studentenwerk*, the nominal average gross income of students in Germany in 2009 was 812 Euro per month (Isserstedt et al. 2010, 191) of which health insurance, taxes and social costs needed to be deducted to calculate the monthly net income.
- ⁴ A list of all items (in German) can be obtained from the author.
- ⁵ Dichotomous items were coded "0" for incorrect or "No" answers, and "1" for correct or "Yes" answers, respectively, throughout this paper.
- ⁶ Although correct knowledge, wrong knowledge and missing knowledge ("don't know" or leaving the question out) are different aspects (e.g. Johann 2008; Mondak 1999), missing values were treated as wrong answers. This is in line with the usual definition of knowledge which includes that one has to believe that one's own answer is correct, and with the finding that answering "don't know" indeed seems to indicate missing knowledge (e.g. Luskin/Bullock 2005).
- ⁷ Correlations are always reported with respect to the level of measurement: Pearson correlations refer to two variables that are both measured at (quasi) interval level. A point biserial correlation includes a (quasi) interval scaled variable and a truly dichotomous variable. A biserial correlation reports the covariation between a (quasi) interval variable and a variable that was not measured as a binary variable but was artificially dichotomised by the researcher after data collection. A tetrachoric correlation shows the covariation

between two artificially dichotomised variables, and the covariation between an artificially dichotomous variable and a truly dichotomous variable which was measured as a binary variable makes a point tetrachoric correlation.

- ⁸ Although some other socio-demographic variables do as well correlate with some of the criteria and predictor variables, the reported results hold even if these variables are added to analyses in which bivariate intercorrelations between them and other predictors or criteria exist, but without the added variables having any significant effect on any of the criteria. They are therefore not considered in the following models.