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ABSTRACT

The present study examined predictions of increased learning effectiveness in connection with WebQuest as a self-instructional learning environment in the context of political education. Analyses were based on the data of 502 students from ninth- and tenth-grade classes from middle-track (German: Realschulen) and high-track (German: Gymnasien) German secondary schools. In the framework of the TEESAEC project, lessons employing WebQuest were compared with teacher-directed lessons in a total of 22 classes. This study does not support the effectiveness of new types of teaching methods in comparison to traditional teaching methods. While girls clearly profited more from the lesson series than boys, there was no substantial influence of sex on prior knowledge. Adolescents with a Turkish migration background performed considerably poorer and those with a southern European background somewhat poorer in the pre-test than adolescents without a migration background. With regard to political interest, it was found that while interest in politics in Germany exerted a positive influence on prior knowledge, specific interest

KEYWORDS

political knowledge
concepts
intervention study
interest in politics
academic self-concept
European Union

in European politics did not explain any unique variance. Pupils may generally profit from parents' cultural capital and too little from political education lessons. The results of the study suggest that motivation and academic self-concept represent factors that are more important than the specific methods applied when it comes to lesson efficiency.

1. INTRODUCTION

The development of political competence is an important task of political education in school. It requires volition and motivation to solve tasks that are presented in political education lessons or in daily life. Cognitive abilities and skills are needed for that purpose. Emotions can also play a role. Competences are social, emotional, volitional and cognitive achievement dispositions (Weinert 2001) required to cope with problems in the area or domain of politics. Thus, political competence is a complex construct that is not only based on domain-specific content-knowledge, but, e.g. also on other motivational and volitional factors. The development of individual political knowledge is only one competence dimension. Competences related to knowledge must be established in the classroom.

The Teacher Empowerment to Educate Students to Become Active European Citizens (TEESAEC) project that was supported by the European Union (EU) from the year 2006 to 2009 within the framework of the Comenius Programme has two objectives. On the one hand, lesson materials on the EU were developed in the form of a WebQuest (<http://www.politikwiss.ph-karlsruhe.de/teesaec/>), and on the other hand, a knowledge test was conducted in participating countries (Germany, the Netherlands, United Kingdom, Austria, Estonia, Switzerland). In the following, the results of the German study are reported.

2. DIDACTIC DESIGN OF THE POLITICAL EDUCATION LESSONS

Lessons are designed to cultivate cultural skills (knowledge and understanding of the world) as much as to promote domain-specific knowledge within individual subjects. Of particular importance for the development of knowledge in a specific content area (domain) is the acquisition of terms (concepts) as well as the networks between them (conceptual knowledge) (e.g. Rittle-Johnson and Siegler 1998: 77). Political knowledge has its basis in related academic disciplines, first of all in political science. In this respect, it is a specific knowledge domain that is didactically defined (Baumert and Kunter 2006: 495).

Processes of knowledge acquisition are content-related structural learning processes with equivalents between the structures of the subject matter (in terms of domain-specific knowledge) and the cognitive structures of the learners. During learning, knowledge is being actively constructed and connected on the basis of pre-existing concepts. Knowledge seems to be a necessary condition for the pupils' learning progress (Baumert and Kunter 2006: 469). In the knowledge of the learners domain-specific concepts are connected with pupils' conceptions and beliefs (misconceptions, typical mistakes, typical problems or pupils' strategies) (Baumert and Kunter 2006: 494).

Thus, imparting conceptual knowledge was one of the aims of the WebQuest's design. An example: those pupils who have established a domain-specific concept about elections in class can later, as citizens, evaluate a report on the procedures of elections in another country and are capable of

drawing conclusions from that. Those who know about the requirements for democratic elections in Germany can evaluate and understand the reports on the outcomes of elections in Belarus. So, knowledge is presented in its specific functionality with the help of domain-specific concepts.

3. THEORETICAL BACKGROUND

The present study aims to contribute to conceptual knowledge on the specialized concept of European players – a sub-facet of political knowledge. A theoretical model underpins the concept employed in the lesson series (Weisseno et al. 2010). It specifies the specialist concept ‘European players’ and further terms that are necessary for the conceptualization of the lessons. The theoretical model describes ‘European players’ as elements of the political system of the EU: besides the institutions and their members (European Parliament, Commission, Council, European Court of Justice), a growing number of players who address their claims to the system have established themselves: trade unions, political parties, industrial, financial and automobile organizations, associations for environmental protection, and so on. The citizens can address their claims to the EU via national elections, European election, legal actions and by joining parties or lobbies. The decisions of the EU affect a multitude of political areas like, for example, social, environmental, landscape and financial policy, external trade, defense and transport policy (Weisseno et al. 2010: 108).

In the subject area of politics, very few empirical studies have so far examined pupils’ conceptual knowledge. Political science studies on knowledge have so far provided rather few valid results (Delli Carpini and Keeter 1996; Galston 2001). They elaborate in particular upon factual knowledge and focus on the association between knowledge and attitude. In contrast, educational scientific research conducted by the IEA study (Torney-Purta et al. 2001) has demonstrated that pupils’ state of knowledge hardly correlates with their political attitudes and convictions. Knowledge of the EU amongst pupils in England is significantly below that of other pupils in Europe (Nelson et al. 2010).

Empirical research on the WebQuest method has been found that the medial form of information presentation must correspond with learning preferences in order to ensure learning success (Souvignier and Gold 2006: 154). Further studies indicate that WebQuest, as a self-instructional learning environment, demonstrates high learning effectiveness (Kulik et al. 1985; Manzel 2007). It has also been shown that WebQuest improves learners’ acquisition of competence (Mayer and Chandler 2001).

Before commencing hypothesis testing, factors (predictors and criterion variables) that influence knowledge on the EU are theoretically derived. Numerous political science studies have generally found that women have a more distant relationship to politics than men. Women participate less in politics and display a lower degree of both political interest and knowledge (Fuchs 2006; Westle and Schoen 2002).

Since both ninth graders from middle-track secondary (German: Realschulen) and tenth graders from high-track secondary schools (German: Gymnasien) participated in the present study, performance differences associated with these variables were controlled for. With respect to the effect of age, performance will be influenced by cognitive development and the length of school education (Walter et al. 2006). Furthermore, all school studies have shown that, due to the selectivity of the German school system, pupils from high-track schools demonstrate higher levels of knowledge (Baumert et al. 2006).

Academic-achievement studies have further established that pupils with a migration background have lower levels of competence in mathematics, the natural sciences and reading (Baumert et al. 2006; Klieme et al. 2010). This is explained by aspects of social integration such as language skills, sense of community and social networks.

The number of books at home (without magazines, newspapers, school books, exercise books) serves as a proxy measure of the cultural capital of pupils' parents and has proven useful in numerous academic-achievement studies (Klieme et al. 2010). Magazines, newspapers and school books were not to be counted. It can be assumed that parents are able to transmit knowledge on more complex subjects to their children when they possess sufficient cultural capital.

In the tradition of Tocqueville, who referred to associations/clubs as 'schools of democracy', social capital theory postulates that social networks foster trust and democratic standards and values among their members from which advantages arise for the individual and for the cohabitation of people (Putnam 1994; Gabriel et al. 2002). Membership in youth organizations (1), political and social organizations (2), and sport clubs and cultural organizations (3) served as indicators.

Interest in politics as a dispositional characteristic is a key prerequisite for learning success in this specialist domain. Intrinsic interest leads to a self-determined approach to the subject and thus promotes self-instructional learning within and beyond the classroom (Schiefele 1996). The employed questionnaire used a ten-point scale that was labelled at the end points to assess interest in politics in Germany and in politics in the EU.

General and academic self-concepts as psychological features of an individual are also known to foster performance at school (Marsh and Hattie 1996; Koeller and Baumert 2001). This effect is conveyed through the pupil's performance: only pupils who are principally convinced that they are able to solve a task sum up the necessary endurance and cognitive resources for successful task completion, whereas individuals with a low self-concept tend to avoid task engagement (Helmke and Weinert 1997). In the questionnaire employed in the present study, the battery of items designed to measure the math self-concept in the international mathematics and science study (TIMSS; Koeller et al. 2000) was applied. Pupils' domain-specific self-concept was assessed based on their degree of agreement with four statements such as 'I am not particularly good at civic studies/social studies'.

According to democracy-education research, the application of democratic behaviours at school increases political competence, including components relating to knowledge (Hahn 1999; McDevitt and Kioussis 2006). A classroom culture that embraces open discussions in which all parties are equal and in which pupils are able to freely express their opinions should promote the acquisition of political learning contents. The item battery employed here was taken from the Civic Education Study (IEA) and is based on six statements such as 'Pupils are encouraged to develop their own opinions'.

The concept of latent learning assumes that knowledge can be obtained through the consumption of certain media even if knowledge acquisition does not constitute the consumer's primary aim (Kunczik and Zipfel 2006). In order to test this assumption, pupils were asked how often they used television, daily newspapers, magazines, radio and the Internet (six response categories).

4. HYPOTHESIS

Prior knowledge represents the starting point of the intervention and must be taken into account when examining knowledge increases. The aim is to investigate which pupil attributes are predictive of their conceptual knowledge prior to participation in the lesson series. The investigation thus focuses on effects (on both prior knowledge and knowledge increase). The central aim of the present study emerges from the above-presented references on the didactics of political education and relevant empirical research: Does the application of WebQuest as a self-instructional learning environment lead to greater increases in knowledge as compared with the application of a purely teacher-directed learning environment?

The central questions of the study arise from the aims of the study and the references to empirical research:

Does the usage of WebQuest as a self-instructional learning environment, including concept learning, lead to greater knowledge increase than the usage of a traditional learning environment?

What effects do domain-specific self-concept, classroom climate and the usage of media have on political knowledge and knowledge increase?
What are the effects of cultural factors and sex?

5. PROCEDURE

The employed lesson series was a self-learning project in the form of a WebQuest that is accessible via the Internet. The WebQuest does not only serve as a technical learning platform but above all as a moderation tool of concept learning in the classroom. A central element of WebQuest is the independent processing of information on the Internet with respect to domain-specific questions and issues that guide the individual tasks and searches to be performed to varying degrees. Ultimately, the pupils are required to create their own networks of terms on the EU based on the interlocked networks of terms and materials provided (Weisseno and Eck 2009).

The lesson series introduces pupils to the structure of the EU, demonstrating the collaboration of institutions based on the example of the planned CO₂ regulation for exhaust emissions. The series comprises four learning units and five lessons. The material, which is selected according to aspects of concept learning, is supplemented by a consistent application of a teaching strategy that particularly aims at promoting competence in the area of domain-specific knowledge by stimulating the development of individual constructions with the help of specialized concepts and terms.

The aim of the knowledge test was to assess conceptual knowledge of the EU. The questionnaire was developed based on the assumption that an abstract, conceptually organized knowledge structure would enable pupils to solve unfamiliar problems by transferring and applying concepts to the specific situations. The questions in the knowledge test thus provided brief descriptions of political situations, which had not been dealt with within the lesson series and which were initially new to the pupils. If pupils were not able to spontaneously answer a question, they were instructed not to guess but rather to select the response option which they considered to be most likely. The knowledge test thus differed from classroom tests in which knowledge is primarily to be reproduced in a form, which is identical to that in

which it was acquired. For example a classroom test that will be marked by the teacher requires the pupils to solve the following task: Do you think the Commission's bill will meet with the approval of European citizens? Weigh it up and justify your views.

Knowledge of the EU was assessed using a standardized questionnaire that was completed in written form. The questionnaire comprised a knowledge test with multiple-choice questions that were to be answered by selecting one of four presented response options. Two pilot tests were conducted prior to the study in order to ensure that the questions were understandable and solvable. On both measurement occasions, questionnaire completion lasted 45 minutes.

The knowledge-test questions were identical on both measurement occasions. In order to ensure that the participating teachers did not specifically prepare their classes to answer test questions, pupils and teachers were informed that the questions in the post-test would differ from those in the pre-test. Furthermore, teachers were not provided with a personal copy of the questionnaire. Nonetheless, practice effects due to pupils repeatedly completing the same knowledge test cannot be ruled out. Such effects were accounted for by selecting appropriate items and including a method factor when modelling the measurement model (Steyer 2005).

During training, the teaching staff of the treatment group was instructed to become acquainted with the objectives of competence-oriented instruction, as well as with the contents and feedback strategies of learning with the WebQuest and to attempt a situational appropriate implementation. This entailed intensive familiarization of the teachers with the teaching method and lessons with concepts. As self-directed learning leads to higher drop-out rates, they were required to provide pupils with individual feedback after each learning unit. For this purpose, they were supplied with a teacher manual that comprised an overview of the concepts to be applied in each task. Teachers in the control group received no instructions and no access to the learning platform but the same contents of the lesson series were made obligatory for them (European Parliament, Council, lobbies, European parties).

Consent to the questioning was given by 98 per cent of the parents. The authors introduced WebQuest to the pupils and administered the tests. Besides the knowledge test (25 minutes), the questionnaire consisted of questions about socio-demographic and cultural background variables (five minutes) and about further attributes of the participants (fifteen minutes). The time limit for test completion was 45 minutes at both measurement occasions.

After the introduction lesson, in addition to the five lessons – 45 minutes, the pupils of the experimental group had to solve written learning tasks in their own words. Both groups had the same conditions of time and content. As a rule, the pupils had one or two lessons per week. The lesson series took between three and five weeks. The topic of the EU had not been dealt with in these classes before.

A further problem of the learning option arises from possible moderating variables. The pupils of the experimental group were introduced to the new media presentation format in an extra lesson in order to increase their approval. The goal in working with keywords (concepts) was explained on the same occasion. In order to keep the specific cognitive skills for dealing with hypertexts as simple as possible for everyone, strong pre-structuring was achieved by making obligatory learning materials that contained the keywords or specific concepts the pupils were supposed to learn. Furthermore,

the learning tasks to solve were supposed to enable the pupils to achieve the teaching goal. Overall, in designing the WebQuest it was tried to take into account that the medium does not have any direct effect on learning success, so that didactic embedding and preparing is necessary (Kerres 2003).

6. SAMPLE

The TEESAEC project comprised an intervention study in which lessons with WebQuest were compared with teacher-directed lessons in ninth-grade classes from middle-track high schools and tenth-grade classes from high-track high schools ($n=22$). In order to assess and explain individual changes between measurement occasions, the data used here are based exclusively on a sample of pupils who participated in both the pre- and the post-test. A total of 572 pupils were assessed on the first measurement occasion and 502 of these were identified on the second measurement occasion. This corresponds to a drop-out rate of approximately 12%, which can be considered very low. The sample comprised 292 boys (58%) and 210 girls. In 122 cases (24%), at least one parent did not originate from Germany. This distribution deviates a little bit more from the distribution in the age group. In the German Federal Republic there are 51.6 % pupils of male sex and 48.4 of female sex.

There are 45 pupils (8.96%) with one parent not originating from Germany and 77 pupils (15.34%) with both parents not originating from Germany. Thus, the proportion of pupils having a migration background is below the national average of 29.7%; 492 pupils originate from Germany; 80.9 % of the pupils state that they speak only German at home; 3.2% of the participants speak only one different language at home, while 15.9% of them speak one different language besides German. There is only a small proportion of 3.4% adolescents having ten books or fewer available in their parental home. Here, the modal category is the number of books from 22 to 100.

7. METHOD

The present study tries to empirically examine the domain-specific concept of 'European players' with the help of a test booklet (34 items). Using the concepts Parliament, Commission, Council and Commission President, the domain-specific knowledge of the pupils can be further developed. These concepts are taken into account in the lesson series and item development. Test scores can thus be interpreted in a criterion-oriented manner. Conceptual questions on the EU have so far not been available in the form in which they were employed in the present study and were therefore newly developed.

Example question: Suppose that Cyprus decides to block the EU and votes from now on against every new bill to be passed by the Council of Ministers. What will happen?

- o The EU is not able to pass any more bills.
- o The EU can continue to pass all bills.
- ✓ The EU can pass many but no longer all bills.
- o The EU has to draw lots to decide about passing bills.

Two aspects of migration background were assessed: Pupils were asked to state their mothers' and fathers' country of origin as well as the languages spoken at home. In cases where at least one parent did not originate from Germany, pupils were assigned to one of the following categories: 'Turkey',

'southern Europe', 'Eastern Europe', or 'other'. Combinations of these categories (e.g. father originating from Turkey and mother from Eastern Europe) did not occur in the present sample. This classification is based on the three migration groups that are highest in number in Germany. With regard to languages spoken at home, of interest was whether pupils reported that only German, only a different language, or both German and a different language was spoken. Thereby it must be considered that migration background is a far more complex phenomenon than measuring it only with these two variables.

Since the German educational administration only collect very limited data regarding the parents due to data protection reasons, an additional questioning of the parents, or more pupil questions would be necessary in order to achieve more exact statements. It was not possible in the present case, because out of consideration for the parents, the school administration in Baden-Wuerttemberg has not given approval to collect further data on migration background and socio-economic status. In this respect, the data concerning migration background and cultural capital can only be interpreted in a limited way. The three collected items are rather to be regarded as information about familiarity with the culture prevailing in Germany.

The families' cultural practice was also collected with a single variable only. The book question was an indicator to collect data on affinity to bourgeois lifestyle. Further questions, for example about music or theatre visits could not be asked due to the reasons mentioned. Since it can be assumed that social background is characterized by multidimensionality, social background has only limitedly been determined by a total of four variables in this study.

Since it is not the responses to single questions that are of interest when measuring knowledge, appropriate scaling must be developed. In such knowledge tests, each individual is to be assigned a certain level of ability on the basis of their response behaviour across all questions. The ability of an individual cannot be directly observed and is therefore regarded as a latent variable. According to classical test theory, a latent attribute can be directly derived from the true score of a test plus measurement error (Steyer 2001). No distinction is made here between latent and manifest (observable) variables. The attribute of the person is therefore equal to the response behaviour; special emphasis is attached to estimation of the measurement error.

According to item response theory, latent ability is estimated. Decisive for correct responses to a question is the ability of the person (person parameter) on the one hand and the difficulty of the question (item parameter) on the other (Borsboom et al. 2003). The probability that a person with a certain ability level provides the correct answer is estimated for each question. The probability of solving a question is therefore a function of the person parameter and the item parameter. In our case, dichotomous answer variables were employed (correct vs incorrect answer).

Data were analysed using the software MPlus (Muthen and Muthen) under consideration of the two-parameter logistic Birnbaum model. Here, item functions differ according to their level of difficulty (point of inflection) and their discriminatory power (slope). The difference to the one-parameter Rasch model is that discriminatory power can vary across items. This is due to the fact that not all items distinguish equally well between individuals with different ability levels. This carries the disadvantage of functions potentially overlapping so that the order of item difficulties is dependent on the respective sample of individuals and specifically objective measurements are not possible (Rost 1996: 134).

In selecting the measurement models, we drew upon three assumptions: (1) All knowledge questions measure the same attribute and load onto the general factor 'knowledge of the EU'. While feasible sub-aspects were distinguishable due to test development, a one-dimensional construct should principally be verifiable (Delli Carpini 1993).

(2) The measurement model is independent of group membership. To test this second assumption, sex and migration background were investigated. According to this assumption, girls and boys with the same ability level will show the same probability of solving a certain question. Similarly, the probability of solving items also does not depend on migration-background status (group-specific measurement variance).

(3) The scale for knowledge measurement can be used in both the pre-test and the post-test. Item parameters are therefore identical on both measurement occasions (time-specific measurement variance).

A multi-group model with parameters that were estimated separately for girls and boys as well as for individuals with and without a migration background was used to test the second assumption. Comparing this model with a constrained model in which parameters were set equal for all groups revealed no significant model differences (χ^2 difference test: $p > 0.05$).

In order to ensure that knowledge on both measurement occasions can be measured using a standardized scale, item parameters were set equal, with knowledge on both occasions being conceived of as two-dimensional. Item parameters from this joint scaling were compared with separately scaled parameters, and items with standardized item parameters which deviated from the joint scaling by more than 0.25 were excluded. The measurement model with equally set parameters subsequently did not significantly differ from a non-constrained model and showed good data fit (CFI=0.922; TLI=0.940; RMSEA=0.037; WLSMV estimator). The latent correlation between the two tests was strikingly high (see *Prenzel et al. 2006*, Chapter 12.3.1), amounting to $r=0.87$.

Latent abilities on both measurement occasions were recorded as values on the joint knowledge scale and their distributions were examined. Based on examination of a histogram and a Kolmogorov–Smirnov goodness-of-fit test, both variables can be characterized as being approximately normal in their distributions. The internal consistencies (Cronbach's α) of both achievement tests were good at both measurement occasions (pre-test $\alpha=0.83$, post-test $\alpha=0.86$).

The five items capturing the domain-specific self-concept (five items, four-level response format) show the expected good reliabilities (Cronbach's $\alpha=0.80$). The item battery for democratic classroom climate (six items, four-level response format) shows the expected good reliability as well ($\alpha=0.79$). However, the item battery about media use (six items) does not show acceptable reliability. Therefore, the items and also the question about general political interest were not scaled but separately considered in the regression analyses. The three variables about membership in organizations (sports club, youth organizations, political organizations) could only be inserted separately as well.

As an indication of the external validity of the measurement, pupils were asked to state the last grade they received in the subject of civic studies/social studies. In addition, respondents were asked to estimate how much they knew about the EU using a ten-point scale. The correlation between last grade and knowledge was $\rho=-0.206$ at pre-test and $\rho=-0.225$ at post-test (Spearman's ρ , $p < 0.001$ in both cases; the negative coefficient is due to the inverse scaling

of grades). While this association is not especially high, it corresponds with values reported in other studies and is to be explained by the fact that, as mentioned above, the employed knowledge test clearly differs from traditional classroom tests, so that a high association was not expected.

As a further indication of external validity, an expert review ($N=19$) was conducted. The average deviation of expert judgments from the actual proportion of correct answers was 13.7 percentage points. The experts considered 77 per cent of the questions to be important or highly important for basic education in politics at the end of Stage 1 of secondary education. The knowledge test can thus be seen as valid with respect to the curriculum.

8. RESULTS

The data of both achievement tests are normally distributed. The curve is slightly skewed to the left, which points to a relative over-occupation of the upper ability areas. The average knowledge of the experimental group in the pre-test is above the score of the control group. The experimental group answers significantly ($p \leq 0.001$) more questions than the control group in the pre-test ($F=33.20$) and in the post-test ($F=17.76$). The distribution of the points in the pre-test and the post-test is approximately normal (asymptotic significance $p \leq 0.001$). This indicates that the teachers have selected the 'more efficient' classes for the WebQuest. The different knowledge increases of the individual pupils have possibly caused the greater post-test variance.

Prior knowledge of boys and girls hardly differs in both groups. Only a slight deviation can be noticed. Regarding prior knowledge and the number of books at home can be demonstrated: pupils whose parents possess more than 200 books perform better in the test than pupils with fewer than 25 books at home. Adolescents with Turkish migration background achieve significantly worse performances in the pre-test, adolescents with South European migration background perform slightly worse than adolescents without migration background. When compared with the other categories, it is striking that the test results of pupils whose both parents originate from Germany scatter significantly stronger upwards and downwards.

The correlation of the domain-specific self-concept with knowledge is $r=0.43$ (pre-test) and $r=0.47$ (post-test) ($p < 0.001$ respectively). Usually the correlation of self-concept and knowledge does not exceed $r=0.25$ (Moeller and Koeller 2000). Thus, the present correlation with the prior knowledge and the knowledge of the post-test is above the mean value. However, the correlations of the item battery regarding democratic classroom climate with prior knowledge ($r=0.14$, $p \leq 0.01$) plus the correlation with post-test knowledge ($r=0.18$, $p \leq 0.001$) are small.

The following results were computed using a multivariate regression analysis and an ordinary least squares (OLS) estimation approach. Including the independent variables in a step-wise manner provides insight into the causal structure between the factors influencing prior knowledge.

Model 1 only included the variables sex, migration background, school year and experimental group. Pupils in WebQuest classes showed a significantly higher level of prior knowledge on the EU as compared with the control classes. As expected, classes from high-track high schools also demonstrated superior prior knowledge as compared with classes from middle-track schools. Boys outperformed girls in the pre-test. These effects disappeared, however, when controlling for political interest (Model 2).

DV: Pre-test knowledge	Model 1	Model 2	Model 3
School year: 10	0.385***	0.366***	0.352***
Experimental group: WebQuest	0.156*	0.112	0.098
Sex: female	-0.107	-0.016	-0.023
Parents' country of origin (reference category: Germany):			
Turkey	-0.129*	-0.090*	-0.099*
Southern Europe	-0.065	0.003	-0.062
Eastern Europe	-0.147*	-0.081	-0.007
Other	-0.059	-0.043	0.010
Languages spoken at home (reference category: only German):			
German and other	0.071	0.014	0.008
Only other	0.031	0.020	0.006
Number of books at home		0.133*	0.095*
Membership in:			
Youth organizations		0.062	0.115**
Political and social organizations		0.020	0.028
Sport clubs and cultural organizations		0.024	0.013
Interest in politics:			
Regarding Germany		0.400***	0.069
Regarding the EU		0.000	0.059
Domain-specific self-concept			0.297***
Democratic classroom climate			-0.048
Use of media:			
TV			-0.061
Daily newspaper			0.114*
Magazines			-0.034
Radio			-0.012
Internet			0.107**
R ²	0.237	0.401	0.436

($p \leq 0.001$ ***; $p \leq 0.01$ **; $p \leq 0.05$ *)

Table 1: Regression analyses for predicting prior knowledge about the EU.

The language spoken at home and the country of origin of pupils' parents had a rather weak but consistent influence on prior knowledge. When controlling for country of origin, the language spoken at home had no influence on pre-test scores. A comparison of different countries of origin revealed that pupils with at least one parent originating from Turkey performed considerably poorer than fellow pupils whose parents originated from Germany. These effects persisted across all regression models. Pupils with parents originating from southern Europe also proved to be disadvantaged with respect to prior knowledge, although this effect was smaller and non-significant than that found for those with a Turkish origin and became even weaker when other variables were controlled for. The influence of an Eastern European origin was only significant in Model 1. In order to examine changes in observed effects

according to whether pupils' parents originated from an EU member country, an interaction variable was additionally formed. This variable showed no effect; the influence of Turkey and southern Europe as places of origin was insignificant, which may, however, also be due to the small number of cases within these sub-groups.

Model 2 also included political interest, the number of books at home and membership in clubs. The more books parents had at home, the greater pupils' prior knowledge of the EU. This effect remained highly significant across all models. With regard to political interest, the analysis revealed that interest in politics in Germany exerted a positive influence on prior knowledge, while special interest in European politics did not explain any additional variance. Membership in various types of clubs and organizations had no significant impact.

The most influential factor was domain-specific self-concept (Model 3): The more positive pupils' self-concept regarding the subject of civic studies, the higher their pre-test performance. Motivation and self-confidence thus play a central role in this explanatory model. When controlling for domain-specific self-concept, the effect of political interest on prior knowledge disappeared. Pupils who frequently read the newspaper or used the Internet showed higher mean performance scores, whereas using other media forms had no effect or showed a slightly negative tendency.

When controlling for other variables in the model, democratic classroom climate did not significantly contribute to explaining prior knowledge.

The share of explained variance approximately doubled from Model 1 (22.7 per cent) to Model 3 (43.0 per cent) and can overall be considered high. Due to the large number of independent variables, however, the need for a downward correction should be taken into account.

The very small changes in knowledge increase cannot turn out significantly on the basis of five lessons. The effect size measure for the improvement in the experimental group was 0.06 standard deviation as expected and 0.13 in the control group. In order to examine the effects of the selected predictors on knowledge increase, an autoregressive model was employed in which pre-test knowledge was also included as an independent variable (Steyer 2005). This allows the resulting regression coefficients to be interpreted as effects on knowledge changes: The result is residuals which express how high the differences in knowledge would have been if all pupils had achieved the same pre-test scores (Prenzel et al. 2006: 43).

Including pre-test performance as a control variable explains an enormous share of the variance in post-test performance, in particular in cases of low-to-medium increases in knowledge. The R^2 value in this autoregressive model can no longer be interpreted in a meaningful way. Overall, the regression models reveal very few significant effects. When controlling for prior knowledge, girls outperform boys in the post-test. This effect was not hypothesized.

The variable WebQuest had no significant effect; the study hypothesis was thus not confirmed. There was no discernable difference in knowledge increase between the two experimental groups. With respect to individual learning gains, WebQuest therefore is not superior to teacher-directed methods. There is no empirical evidence to support the added value of self-instructional learning that is often emphasized in the field of education science.

Pupils who were members of sport clubs and cultural organizations in their leisure time appeared to profit more from the lesson series. This finding

DV: Post-test knowledge	Model 1	Model 2	Model 3
Pre-test knowledge	0.630***	0.605***	0.631***
School year: 10	0.188**	0.193**	0.126*
Experimental group: WebQuest	0.018	0.035	-0.044
Sex: female	0.127*	0.130*	0.078
Parents' country of origin (reference category: Germany)			
Turkey	-0.043	-0.029	-0.039
Southern Europe	0.032	0.049	-0.042
Eastern Europe	-0.122*	-0.114	-0.019
Other	-0.045	-0.044	-0.024
Languages spoken at home: (reference category: only German)			
German and other	-0.041	-0.036	-0.007
Only other	0.039	-0.037	0.045
Number of books at home		0.048	0.095*
Membership in:			
Youth organizations		-0.049	0.014
Political and social organizations		0.057	0.011
Sport clubs & cultural organizations		0.157*	0.084*
Interest in politics:			
Regarding Germany		0.088	-0.005
Regarding the EU		0.036	-0.052
Domain-specific self-concept			0.156**
Democratic classroom climate			-0.048
Use of media:			
TV			-0.012
Daily newspaper			-0.025
Magazines			0.002
Radio			-0.011
Internet			-0.005
<i>R</i> ²	0.472	0.480	0.555

($p \leq 0.001$ ***; $p \leq 0.01$ **; $p \leq 0.05$ *)

Table 2: Regression analyses for predicting intraindividual change of knowledge.

is in line with the assumptions of social capital theory, according to which being integrated in social networks results in an improved dissemination of relevant information.

Again, the strongest effect was found for domain-specific self-concept. When holding a pre-test performance constant, individuals with greater confidence in their own talent in the subject of civil studies/social studies scored higher on the post-test. This indicates the considerable significance of affective motivational factors in the context of academic achievement.

Media use, interest and democratic classroom climate did not contribute to explaining variance in knowledge increase.

9. SUMMARY AND DISCUSSION

Empirical evidence that underscores a superiority of the self-instructional learning concept is still rather scant, and clear advantages of the approach were not confirmed by the data in the present study. This may be due to a potentially suboptimal combination of independent learning or to the fact that teacher feedback behaviour was not controlled for in the study so that pupils may not have been provided with the feedback they required. It is also possible that teachers' hopes that teaching methods which are new might be particularly motivating are not justified. From a scientific perspective, the empirical validity of such assumptions should be more intensively examined. This study does not support the effectiveness of new types of teaching methods in comparison to traditional teaching methods, but call the attention to the role of personal variables like self-concept and motivation. Learning depends on the learner as well. Whatever teaching method is applied if there is no interest in the subject (and the method is unable to influence the interest) and pupils do not feel confident then learning does not take place.

In the present study, the effect of sex was inconsistent. While girls clearly profited more from the lesson series than boys, there was no substantial influence of sex on prior knowledge. These findings cannot be clearly interpreted. The results are therefore in line with the general discussion on the significance of sex variables within learning research, since data have generally been found to vary according to the subject under examination and the specific study.

Results regarding the influence of migration background clearly correspond with trends within education research and social statistics. In the present study, adolescents with a Turkish migration background performed considerably poorer and those with a southern European background somewhat poorer in the pre-test than adolescents without a migration background. Overall, migration background assessed based on parents' country of origin had a rather weak but consistent effect. When controlling for country of origin, the language spoken at home had no significant influence. Political education lessons thus seem to have insufficiently accomplished their task of encouraging a widening of knowledge.

Due to the lack of objective social data (e.g. the International Socio-Economic Index (ISEI)) in the present study, responses to the question regarding the number of books at home were alternatively drawn upon. Findings were clear: The more books pupils' parents possessed at home, the greater pupils' prior knowledge of the EU. This effect remained highly significant across all models. With regard to political interest, it was found that while interest in politics in Germany exerted a positive influence on prior knowledge, specific interest in European politics did not explain any unique variance. Pupils may generally profit from parents' cultural capital and too little from political education lessons.

Results on pupils' domain-specific self-concept play a central role. When controlling for this variable, even the effect of political interest disappears. The results of the study suggest that motivation and subjective talent represent factors which are more important than the specific methods applied when it comes to lesson efficiency. This finding does not yet seem to have been paid the attention it deserves within educational practice.

While characteristics of social origin are predominantly stable and scarcely subject to external influences, other areas may be modifiable. The results of the study indicate needs to be addressed within political didactics

and educational practice, above all with respect to the following points: The promotion of pupils with a migration background within political education lessons is to be considered more closely. A domain-specific support concept is yet to have been developed. Pupils with a weaker academic self-concept have so far received little attention within the didactics of political education. These pupils are not adequately supported within subject-focused lessons. Concepts for the promotion of subjective talent in politics must be developed. Even if effects are socialization related, lessons are surely able to make more of an impact. Activities at home must be focused upon and supported.

Much effort has been put into reflecting upon and considering pupils' political attitudes as determinants within the literature and educational practice to date. It would seem necessary to discuss whether this didactic focus is still appropriate given that other, previously neglected factors appear to be substantially more important. Replication studies are required in order to validate the applied measurement model and further studies, which investigate whether teacher behaviour within lessons is sufficiently conducive to learning, are needed. A valid teacher study for the subject area of politics is currently lacking. A study of this kind may also shed light from a different perspective upon the variables discussed here.

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REFERENCES

- Baumert, J., Stanat, P. and Watermann, R. (2006) (ed.), *'Herkunftsbedingte Disparitäten im Bildungswesen'* (ancestry-related disparities in the education system), Wiesbaden: VS-Verlag.
- Baumert, J. and Kunter, M. (2006), 'Stichwort: Professionelle Kompetenz von Lehrkräften' (Keyword: Teaching staff's professional competence), *Zeitschrift für Erziehungswissenschaft*, 9: 4, 469–520.
- Borsboom, D., Mellenbergh, G. J. and Van Heerden, J. (2003), 'The theoretical status of latent variables', *Psychological Review*, 110: 2, pp. 203–19.
- Delli Carpini, M. X. and Keeter, S. (1993), 'Measuring Political Knowledge: Putting First Things First', *American Journal of Political Science*, Vol. 37: 4, pp. 1179–1206.
- Delli Carpini, M. X. and Keeter, S. (1996), *'What Americans Know About Politics and Why it Matters'*, New Haven: Yale University Press.
- Eck, V. and Weissenö, G. (2009), 'Political knowledge of 14- to 15-year-old students', in G. Weissenö and V. Eck (eds), *Teaching European Citizens*, Muenster/New York: Waxmann, pp. 19–30.
- Fuchs, G. (2006), 'Politische Partizipation von Frauen in Deutschland' (Political participation of women in Germany), in B. Hoecker (ed.), *Politische Partizipation zwischen Konvention und Protest (Political participation between convention and protest)*, Opladen: Barbara Budrich Verlag, pp. 235–60.
- Gabriel, O. W., Kunz, V., Rossteutscher, S. and Van Deth, J. W. (2002), *Sozialkapital und Demokratie. Zivilgesellschaftliche Ressourcen im Vergleich' (Social capital and democracy. Resources of Civil Society in comparison)*, Wien: WUV University Verlag
- Galston, W. A. (2001), 'Political knowledge, political engagement and civic education', *Annual Review of Political Science*, 4, pp. 217–234.

- Hahn, C. L. (1999), 'Citizenship education: An empirical study of policy, practice, and outcomes', *Oxford Review of Education*, 25: 1&2, pp. 231–50.
- Helmke, A. and Weinert, F. E. (1997), 'Bedingungsfaktoren schulischer Leistungen' (Determinants of academic achievement), in F. E. Weinert (ed.), *Psychologie des Unterrichts und der Schule. Enzyklopaedie der Psychologie (Psychology of Instruction and School. Encyclopedia of Psychology)*, Themenbereich D, Serie I, Bd. 3 (Subject Area D, Series I, Vol. 3), Goettingen: Hogrefe.
- Kerres, M. (2003), 'Wirkungen und Wirksamkeit neuer Medien in der Bildung' (Effects and effectivity of new media in education), in R. Keil-Slawik and R. M. Kerres (ed.), *Wirkungen und Wirksamkeit neuer Medien (Effects and effectivity of new media)*. Muenster: Waxmann, pp. 115–131.
- Klieme, E., Artelt, C., Hartig, J., Jude, N., Köller, O., Prenzel, M., Schneider, W. and Stanat, P. (ed) (2010), *PISA 2009. 'Bilanz nach einem Jahrzehnt' (PISA 2009. , Balance after one decade)*, Muenster: Waxmann.
- Koeller, O. and Baumert, J. (2001), 'Leistungsgruppierungen in der Sekundarstufe I. Ihre Konsequenzen für die Mathematikleistung und das mathematische Selbstkonzept der Begabung' (Achievement grouping in lower secondary school. Their consequences on mathematic achievement and the mathe self-concept), *Zeitschrift für Paedagogische Psychologie*, 15: 2, pp. 99–110.
- Koeller, O., Schnabel, K. and Baumert, J. (2000), 'Der Einfluss der Leistungsstärke von Schulen auf das fachspezifische Selbstkonzept der Begabung und das Interesse' (The influence of school-average achievement on the domain-specific self-soncept and interest), *Zeitschrift für Entwicklungspsychologie und Paedagogische Psychologie*, 32: 2, pp. 70–80.
- Kulik, J. A., Kulik, C. L. and Bangert-Drowns, R. L. (1985), 'The importance of outcome studies: A reply to Clark', *Journal of Educational Computing Research*, 1: 4, pp. 381–87.
- Kunczik, M. and Zipfel, A. (2006), *'Gewalt und Medien. Ein Studienhandbuch' ('Violence and media. a studies' handbook)* Cologne: Boehlau.
- Lutkus, A., Weiss, A., Campbell, J., Mazzeo, J. and Lazer, S. (1999), 'The NAEP 1998 civics report card for the nation', NAEP, Washington, DC.
- Manzel, S. (2007), *'Kompetenzzuwachs im Politikunterricht: Ergebnisse einer Interventionsstudie zum Kernkonzept Europa' (Increase in competence in political education lessons: Results of an intervention study on Europe as core concept)*, Muenster/New York: Waxmann.
- Mayer, R. E., and Chandler, P. (2001), 'When learning is just a click away: does simple user interaction foster deeper understanding of multimedia messages?' *Journal of Educational Psychology*, 93: 2, pp. 390–397.
- Marsh, H. W. and Hattie, J. (1996), 'Theoretical perspectives on the structure of self-concept', in B. A. Bracken (ed.), *Handbook of Self-Concept*, New York, NY: Wiley, pp. 38–90.
- McDevitt, M. and Kiouisis, S. (2006), 'Deliberative learning. An evaluative approach to interactive civic education', *Communication Education*, 55: 3, pp. 247–64.
- Moeller, J. and Koeller, O. (2000), 'Spontaneous and reactive attributions according to academic achievement', *Social Psychology of Education*, vol. 4, pp. 67–86.
- Nelson, J., Watt, P. and Kerr, D. (2010), *'Young People's Civic Attitudes and Practices: England's Outcomes'*, London: IEA International Civic and Citizenship Education Study (ICCS).
- Popkin, S. and Dimock, M. (1999), 'Political knowledge and citizen competence', in S. Elkin and K. Soltan (eds), *Citizen Competence And Democratic Institutions*, University Park: Pennsylvania State University Press, pp. 117–146.

- Prenzel, M., Carstensen, C. H., Schoeps, K. and Maurischat, C. (2006), 'Die Anlage des Laengsschnitts bei PISA 2003' (The cohort construction in PISA 2003), in PISA-Konsortium Deutschland (ed.), *PISA 2003: Untersuchungen zur Kompetenzentwicklung im Verlauf eines Schuljahres (Analysis of competence development)*, Muenster: Waxmann, pp. 29–62.
- Putnam, R. D. (1994), *'Making Democracy Work. Civic Traditions in Modern Italy'*, Princeton, NJ: Princeton University Press.
- Rittle-Johnson, B. and Siegler, R. S. (1998), 'The relation between conceptual and procedural knowledge in learning mathematics: A review', in C. Donlan (ed.), *The Development Of Mathematical Skill*. Hove, UK: Psychology Press, pp. 75–110.
- Rost, J. (1996), *'Lehrbuch Testtheorie Testkonstruktion'* (Textbook theory of test construction), Bern/Goettingen: Hans Huber.
- Schiefele, U. (1996), *Motivation und Lernen mit Texten' (Motivation and learning with texts)*, Goettingen: Hogrefe.
- Steyer, R. (2001), 'Classical (psychometric) test theory', in N. J. Smelser and P. B. Baltes (eds), *International Encyclopedia of Social And Behavioral Sciences*, Oxford, Pergamon, pp. 1955–62.
- (2005), 'Analyzing individual and average causal effects via structural equation models', *Methodology European Journal of Research Methods for the Behavioral and Social Sciences*, No 1, pp. 39–54.
- Souvignier, E. and Gold, A. (2006), 'Wirksamkeit von Lehrmethoden' (Efficacy of teaching methods), in K. Schweizer (ed.), *Leistung und Leistungsdiagnostik (Achievement and achievement diagnostic)*, Heidelberg: Springer, pp. 146–66.
- Torney-Purta, J., Lehmann, R., Oswald, H. and Schulz, W. (2001), *'Citizenship and Education in Twenty-Eight Countries. Civic Knowledge and Engagement at Age Fourteen'*, Delft: The International Association for the Evaluation of Educational Achievement (IEA).
- Vosniadou, S. and Brewer, W. F. (1992), 'Mental models of the earth: A study of conceptual change in childhood', *Cognitive Psychology*, 24: 4, pp. 535–85.
- Walter, O., Senkbeil, M., Rost, J., Carstensen, C. H. and Prenzel, M. (2006), 'Die Entwicklung der naturwissenschaftlichen Kompetenz von der neunten zur zehnten Klassenstufe' (The development of natural science competence from ninth to tenth grade), in PISA-Konsortium Deutschland (ed.), *Pisa 2003. Untersuchungen zur Kompetenzentwicklung im Verlauf eines Schuljahres (Analysis on competence development in the course of a school year)*, Muenster: Waxmann, pp. 87–118.
- Weinert, F. E. (2001), 'Concept of competence – A conceptual clarification', in D. S. Rychen and L. H. Salyanik (eds), *Defining And Selecting Key Competencies*. Göttingen: Hogrefe and Huber, pp. 45–65.
- Weisseno, G. and Eck, V. (eds) (2009), *'Teaching European Citizens. A Quasi-Experimental Study in Six Countries'*, Muenster/New York: Waxmann.
- Weisseno, G., Detjen, J., Juchler, I., Massing, P. and Richter, D. (2010), *'Konzepte der Politik – ein Kompetenzmodell'* (Concepts of Politics – a competence model), Schwalbach: Wochenschau.
- Westle, B. and Schoen, H. (2002), 'Ein neues Argument in einer alten Diskussion. Politikverdrossenheit als Ursache des gender-gap im politischen Interesse' (A new argument in an old discussion. Disenchantment with Politics as cause of the gender gap with regard to political interest), in F. Brettschneider, J. van Deth and E. Roller (eds), *Ende der politisierten Sozialstruktur?' (The end of the politicized social structure?)* Opladen: Leske and Budrich, pp. 215–44.

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