Evaluating the Contribution of Schools to the Development of Young People as Future Citizens

Bruno Losito
Roma Tre University
Italy
losito@uniroma3.it

Elisa Caponera,
National Institute for the Evaluation of Educational System
Italy
elisa.caponera@invalsi.it

Cristiano Corsini
Roma Tre University
Italy
corscri@gmail.com

Paola Mirti
Roma Tre University
Italy
paola.mirti@uniroma3.it

Paper presented to the symposium on "Evaluating the Citizenship Competences of Young Adolescents in Europe: Methods, Patterns and Trends" at the European Conference on Educational Research (ECER) in Cádiz, 18-21 September 2012.

Introduction

This paper will illustrate how the contribution of schools to students' civic knowledge and attitudes was analyzed in ICCS 2009. It is divided into three parts. The first part illustrates the constructs and variables included in the ICCS instruments (student, teacher and school questionnaires) and their relationship with findings from previous studies about civic and citizenship education and school effectiveness. The second part of the paper presents some major findings for European countries in relation to the influence of school context on student outcomes. While comparing them with the results from other studies, this paper discusses the extent to which the school variables and the different ways they were collected show associations with learning outcomes. In the third part, this paper explores possible further analyses on ICCS data and presents some examples of these analyses.

1. School factors investigated in ICCS

1.1 Civic-related learning outcomes and students' civic engagement may be influenced by factors or variables related to different contexts: context of the wider community, context of schools and classrooms, context of home environments, context of the individual. In addition, they may be influenced by national context variables (such as demographics, economic development, aspects of the political system).

ICCS collected general information and data on contexts for civic and citizenship education in three different ways:

a. Information about basic demographic, economic, political and educational characteristics was drawn from published resources.
b. More detailed information about civic and citizenship education in the different education systems was gathered from an extensive e literature review on findings from previous studies (Birzea et al., 2004; Eurydice, 2005; CIDREE, 2005) and through the National Context Survey.
c. Data on school and class context were collected through student, school and teacher questionnaires.

1.2 As for European countries, a number of studies underlined how the status of civic and citizenship education (CCE) within the education systems and approaches to CCE adopted in different countries are largely influenced by policy (Birzea et al., 2004; Kerr, 2004, Losito, 2004; Mikkelsen, 2004; Pol, 2004; Sardoc, 2004; Froumin, 2004; Eurydice, 2005).

Information collected through the National Context Survey shows that civic and citizenship education is regarded as a policy priority in most of the European ICCS countries. ICCS national research centers in ten European countries reported civic and citizenship education as having a high policy priority, 12 as having a medium policy priority, and one country (Switzerland) as having a low priority. Only in one country (the Slovak Republic) the national center reported that this area of education had no priority in the country educational policies. The information collected from the ICCS national research centers confirms what emerged from the above mentioned studies and accounts for a considerable change in relation to the findings from the 1999 CIVED survey. The case studies carried out in the first phase of CIVED showed that civic and citizenship education was classified as low status in nearly all education systems of the participating countries (Torney-Purta, Schwille, & Amadeo, 1999).

1.3 According to the information collected through the National Context Survey the majority of European ICCS countries adopt diversified approaches to civic and citizenship education in relation to the curriculum and to the contexts of the school and wider community. According to this information, this learning area includes opportunities for students to put into practice, through their participation in and beyond school, what they learn in the curriculum.

Within the majority of the European ICCS countries, one or more of the following three main approaches are adopted:

- Civic and citizenship education as a separate subject (either compulsory or optional);
- Civic and citizenship education integrated into other subjects; and
- Civic and citizenship education as a cross-curricular theme.

This information is consistent with the information obtained from other studies. Data collected during the ICCS study through the school questionnaire showed that different approaches to civic and citizenship education may coexist within the same school.
It should be noted that education policy for civic and citizenship education is particularly responsive to political changes occurring in different countries.
. The ongoing political and public debates, recently began in Spain and Italy, can be quoted as examples.

1.4 Constructs and variables that previous studies and researches showed as having, in broad terms, an impact on student learning (Scheerens 1990; Hanushek, 1994, 1997; Schereens, Glas, Thomas, 2003; Birzea et al., 2004; Cox et al., 2005; Reezigt & Creemers, 2005), and more specifically on civic and citizenship education (Torney, Oppenheim, & Farnen, 1975; Torney-Purta, Lehmann, Oswald, and Schulz 2001; Amadeo, Torney-Purta, Lehmann, Husfeldt, e Nikolova's 2002) provided the basis for constructing the instruments designed to collect data and information in the survey: student, school and teacher questionnaires (Schulz et al, 2008). At school and classroom levels, ICCS collected data on different aspects of school and classroom climate, student involvement in decision making processes at school, student participation in school-based civic activities in the community (Schulz et al, 2010).
With reference to school and classroom contexts, previous studies showed that classroom climate appears to be associated with student knowledge. In particular, CIVED '99 results showed that classroom climate seemed to be one of the factors more directly related to student performance and to student willingness to engage in civic-related activities (Torney-Purta et al., 2001). Torney-Purta et al. (2007) found that open classroom climate explains a portion of differences on political topics and democratic ideals.
The ICCS teacher questionnaire included an international option consisting of a set of questions to be answered only by teachers of subjects related to civic and citizenship education (based on national definition of subjects related to civic and citizenship education provided by national research coordinators). This international option provided data about teacher confidence in teaching specific civic and citizenship education related topics.
Information about the school context and the role of school in student CCE was also collected through specific question included in the European student questionnaire (on students' opportunities for learning about Europe in school) included in the European Regional Module[1].
Specific questions about learning about European Union were included (as an international option for the European countries) in the student, school and teacher questionnaires.

1.5. Table 1 shows constructs and variables, investigated through all ICCS questionnaires, associated with a number of factors that were identified by SER as relevant to student learning in the area of civic and citizenship education (Creemers, 1994; Creemers, Kyriakides, 2008; Reezigt & Creemers, 2005; Scheerens, 1990).

[1] 24 out of the 26 countries participating in ICCS also participated in the European Regional Module (Austria, Belgium Flemish, Bulgaria, Cyprus, Czech Republic, Denmark, England, Estonia, Finland, Greece, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovak Republic, Slovenia, Spain, Sweden, Switzerland).

Table 1

The comparison of SER and ICCS shows that some of the factors identified as relevant by SER, can be found, at least partially, in ICCS[2]. The absence of important factors, mainly related to class-level processes, can be explained, to a large extent, by the conceptualization of CCE in the ICCS framework and by the CCE characteristics, hardly referable to a single school subject.
This involved a combination of choices and constraints in both the construction of school and teacher questionnaires and the teacher sampling at the individual school-level (teachers of all subjects[3]).

2. The contribution of schools: ICCS main findings

2.1. *How CCE is delivered at a school level and what are the main aims of CCE*
As already pointed out in 1.3, ICCS results suggest that European ICCS countries have diversified approaches to CCE. Moreover, these different approaches often coexist within individual schools.
As can be seen from the answers given by the National Research Centers to the questions included in the National Context Survey, all the European ICCS countries place some or a major emphasis on processes underpinning knowledge and understanding of civics and citizenship. Most also give some or major emphasis on the process of developing positive attitudes among students through the following means (Kerr, Sturman, Schulz, Burge, 2010).

- Participation and engagement in civic and civil society (23 countries);
- Communicating through discussion and debate (23 countries);
- Developing a sense of national identity and allegiance (21 countries);
- Participation in projects and written work (20 countries);
- Creating opportunities for student involvement in decision-making in school (20 countries);
- Creating opportunities for student involvement in community-based activities (19 countries);
- Analyzing and observing change processes in the community (19 countries)
- Analyzing and reflecting on participation and engagement opportunities (17 countries); and
- Analyzing and observing change processes in school (14 countries).

The school and the teacher questionnaires asked principals and teachers to identify the three most important aims of CCE, among a list of aims, including the following:

- Promoting knowledge of social, political and civic institutions;
- Promoting respect for and safeguard of the environment;
- Promoting the capacity to defend one's own point of view;
- Developing students' skills and competencies in conflict resolution;
- Promoting knowledge of citizens' rights and responsibilities;
- Promoting students' participation in the <local community>; Promoting students' critical and independent thinking;
- Promoting students' participation in school life;

[2] Associations shown in Table 1 may be considered a first attempt. For some of the constructs and variables this association is only partial.
[3] The ICCS teacher questionnaire was administered to a randomly selected sample of teachers who taught students in the target grade, in each school.

- Supporting the development of effective strategies for the fight against racism and xenophobia;
- Preparing students for future political engagement.

Table 2

As it was observed in the majority of ICCS countries, in the majority of the European countries principals identified as the most important aims of CCE those related to the development of students' civic knowledge and understanding such as "promoting students' critical and independent thinking", "promoting knowledge of citizen's rights and responsibilities" and "promoting knowledge of social, political and civic institutions".

Some differences were observed across countries. For example, principals in seven countries (Austria, Belgium (Flemish), Denmark, Liechtenstein, the Slovak Republic, Spain and Switzerland) identified "developing students' skills in conflict resolution" as one of the three most important aims for civic and citizenship education. The aim of "promoting respect for and safeguard of the environment" was identified as one of the three most important aims of civic and citizenship education by principals in Belgium (Flemish), Finland, Liechtenstein, Lithuania, Malta and Slovenia.

Only in two countries (England and Poland) "promoting students' participation in the local community" was identified by a large percentage of principals (more than 40 percent) as one of the three most important aims.

Only in Sweden a quite large percentage of principals viewed "supporting the development of effective strategies for the fight against racism and xenophobia" as one of the three most important aims of civic and citizenship education

Only in Greece, a majority of principals identified "preparing students for future political engagement" among the three most important aims of civic and citizenship education (53%).

Teachers' answers to same question were generally consistent with those associated with principals' answers.

"Promoting respect for and safeguard of the environment" was viewed as an important aim of civic and citizenship education by a higher average percentage of teachers than among principals. In six countries (Bulgaria, Finland, Lithuania, Malta, Slovak Republic and Slovenia) this was viewed as one of the three most important aims of civic and citizenship education by more than 40 percent of the teachers.

2.2 *Teacher confidence in teaching CCE topics*

The ICCS teacher questionnaire included an international option consisting of a set of questions administered only to target-grade teachers teaching subjects identified as more directly related to civic and citizenship education[4]. One of the questions included in this international option asked teachers to indicate how confident they felt in relation to a range of topics related to civic and citizenship education. Teachers were asked to rate whether they felt "very confident", "quite confident", "not very confident" or "not confident at all" when teaching each topic.

As for European countries, a region-specific topic concerning teaching about the European Union (EU) was added.

When asked about their confidence in teaching specific topics, teachers indicated they are more confident in teaching subjects such as human rights, citizens' rights and responsibilities, voting and elections, and the environment. On average, they were less confident about teaching topics related

[4] As for teacher identification and selection criteria, see Schulz, Ainley, Fraillon, Kerr, Losito, 2010.

to the economy and business and to legal institutions and courts, as already highlighted by CIVED '99 findings.
Differences across countries are probably related to different approaches to CCE adopted in the participating countries and to teacher pre- and in-service training at the ICCS target grade (grade 8).

2.3 *Students' opportunity for learning about Europe at school*
The ICCS European student questionnaire included a question that asked students about the opportunities to learn about Europe at school. The following items were included in the question:

- Visit other European countries;
- Meet young people from other European countries;
- Learn about major economic and political issues in other European countries;
- Find out what is happening in other European countries;
- Find out about other European countries through the internet or the media (press, TV or radio);
- Learn about arts and culture (e.g. music and films) in other European countries;
- Learn about sport in other European countries;
- Find out what it is like to live in other European countries;
- Learn about how they could work in other European countries.

Table 3 shows the national average scale scores[5] for each of the 24 European participating countries.
The highest scale score (of more than three points above the European ICCS average) was found in Bulgaria, Italy and Malta whereas students in Switzerland and Sweden had the lowest scale score. Lower scale score reflects fewer perceived opportunities to learn about Europe at school.

Table 3

When looking at the individual items included in the scale, the average percentages across countries ranged from 51 percent (learning how they could work in other European countries) to 74 percent (finding out what is happening in other European countries; learning about arts and culture in other European countries).

2.4 *Students participation in civic related activities in the community*
ICCS posits that the context of the local community where the school is situated may have an effect on student learning outcomes. It is not only the school that can influence students' civic and citizenship outcomes but also their experience in the local community and, more in general, the characteristic of this community.
ICCS investigated the interactions between schools and communities and in particular the opportunities students are given to participate in civic related activities organized by the school in the local community.
The ICCS school and teacher questionnaire included a question on the civic related activities target grade students actually had the opportunity to participate in. Table 4 shows the answers given by

[5] The scale had a satisfactory reliability (Cronbach's alpha) of 0.83 for the pooled European ICCS sample and was standardized to having a mean of 50 and a standard deviation of 10.

the principals to this question (national percentages of students at schools where principals reported that all, nearly all or most students had the opportunity to participate in each activity)[6].

Table 4

According to principals' reports, all or nearly all students in participating countries attend schools in which they are offered the opportunity to participate in at least some of the activities carried out by the school in the local community, although general cultural activities prevail over those activities that may be considered more civic-oriented.
As shown in the table, in a majority of countries the highest percentages of students were found in schools where principals reported that students had the opportunity of participating in sports events (except Cyprus) and in cultural activities (except Greece and Cyprus).
In many countries there were also high percentages of students at schools where principals reported that most students had participated in activities related to the environment geared to the local area.
Only minorities of principals reported students' involvement in project activities, such as human rights projects or activities to help the underprivileged.
These results are to be seen in relation to target grade (grade 8) and to students' age.

2.5 *Aspects of schools related to outcomes of civic and citizenship education*
The multilevel model, used for the International Report (Schulz, Ainley, Fraillon, Kerr, Losito, 2010) and investigating factors and variables that have an impact on student civic knowledge, included several school-level variables. Some reflected school characteristics (school socioeconomic context, school location, principals' perceptions of social tension in local community), and some were related to the school learning context (principals' perceptions of students' sense of belonging to the school, school average of open classroom climate[7], school percentage of student electoral participation) (Schulz, Ainley, Frailon, Kerr, Losito, 2010).
Among these school characteristics, school average socioeconomic background, clearly the most important factor, showed significant positive effects in 24 countries. School location showed no significant effects in most of the ICCS countries, with two exceptions: non-rural school location had a significant positive effect in New Zealand and a negative effect in Denmark.
As for principal perceptions of social tensions in the community, there was no significant association in most of the countries. Only in the Czech Republic and Estonia it had significant negative effects.
Among the variables related to the schools' learning context, principals' perceptions of students' sense of belonging had significant positive effects in five countries (Bulgaria, the Dominican Republic, Republic of Korea, Malta and Poland) and significant negative effects in Mexico.
School averages of student perception of openness in classroom discussion were found to be a positive predictor in about a third of the countries[8].
The percentages of students engaged in electoral participation at school had significant positive effects on civic knowledge in Chile, Slovenia and Spain.

[6] Principals and teachers were asked to indicate whether "all or nearly all", "most", "some", or "none or hardly any" of their students had the opportunity to participate in the activities listed in the question.

[7] In their questionnaire, students were asked to rate the frequency ("never", "rarely", "sometimes", "often"), with which, during lessons when discussing political and social issues, the following events may occur: teachers encouraging students to make up their own minds; teachers encouraging students to express their opinions; students bringing up current political events for discussion in class; students expressing opinions in class even when their opinions are different from most of the other students; teachers encouraging students to discuss issues with people having different opinions; teachers presenting issues from different points of view, when presenting them to the class.

[8] The positive effect was significant in 27 countries. See chapter 8 of the international ICCS report.

These findings show how, after accounting for school socioeconomic context, the effect of the other school variables tends to be low or negligible in most countries (with some individual exceptions). Only student perception of openness in classroom discussion seems to have an impact in most countries.

The difficulty in finding strong associations of civic knowledge with school context factors other than socioeconomic context characterizes not only ICCS, but also other international comparative surveys.
When considering the findings of these surveys, it should be noted that most of the context and process variables used in international surveys to "explain" student achievement show associations with school output. Research reports have confirmed said associations, as well. When the average student score at the international level is taken into account, researches show that a number of variables are associated with student results. For example, OECD-PISA surveys (2000-2009) showed, in several editions, statistically significant correlations between student achievement and the following school variables:

- Teacher support
- Student-related factors affecting the school climate
- Disciplinary climate
- Teacher-related factors affecting school climate
- Teacher' morale and commitment
- Teacher shortage
- Time spent on homework
- Quality of the schools' physical infrastructure
- Quality of the schools' educational resources

Similar results were found in IEA studies (that sample whole classes within schools and collect data which are closer to the classroom level). As for PIRLS and TIMSS, reports illustrate that students grouped by the context and process variables listed below showed statistically significant differences in the mean scores of reading literacy (PIRLS 2006,) and mathematics (TIMSS 2007)

PIRLS 2006

- Class size for reading and language instruction;
- Percentage of students whose teachers asked them to read literary texts;
- Students' reports about students reading aloud in class;
- Students' reports about students independent reading;
- Students' reports about students in workbooks about class reading;
- Students write something about class reading;
- Teachers' reports on giving a written question or test after students read;
- Index of reading for homework;
- Availability of school resources;
- Home-School Involvement;
- Seriousness of absenteeism;
- Principal's perception of school climate;
- Teacher career satisfaction;
- Parents' perceptions of school environment;
- Student safety in school;
- Principals' perceptions of school safety.

TIMMS 2007 - MATHS

- Class size for mathematics (grades 4 and 8);
- Teachers' emphasis on mathematics homework (grade 8);
- Item formats used by teachers in mathematics tests (grade 8);
- Good attendance at school (grades 4 and 8);
- Availability of school resources for mathematics instruction (grades 4 and 8);
- Teachers' adequate working conditions (grade 8);
- Principals' perception of school climate (PPSC) (grades 4 and 8);
- Mathematics teachers' perceptions of school climate ;
- Mathematics teachers' perceptions of safety in school;
- Students' perceptions of being safe in school.

Nevertheless, as mentioned before, these studies very rarely find the same association between school variables and learning outputs once the socio-economic status variables are accounted for. Correlations between most of the variables and student achievements, excluding SES, tend not to be statistically significant or even negligible.

3. The influence of school context on student participation at school

When looking at students' learning outcomes usually cognitive outcomes are taken into consideration. In ICCS also behaviors and attitudes are considered as intended outcomes of CCE.
We then tried to investigate the relationships between school variables and student participation at school.
In a previous study (Caponera, Losito, 2011), we developed a multilevel analysis in order to investigate the relationships between school factors and student attitude towards immigrants. After controlling for SES, the impact of school variables was found to be very low or negligible in most countries.

For this paper, we developed a path model which assumes that Knowledge, Students' perception of the value of civic participation at school and Student perceptions of openness in classroom discussions are mediator variables, between student socio-economic index and, on the one hand, school context variables, and on the other hand, Students' civic participation at school. At the school level, we used variables related to the principals' perceptions of the school climate such as: Principals' perceptions of teacher participation in school governance; Principals' perceptions of student opportunities to participate in community activities; Principals' perceptions of student influence on decisions about school. First, we selected a random sub-sample of 500 students per country, and then we developed a satisfying model for whole sample, formed of 23 European countries participating in ICCS survey. Path models were estimated using the software package AMOS 19.0 (J.L. Arbucke, 2010) and cases with missing values on any of the variables were excluded from the path analyses presented in this study. Results are shown in Figure 1 and in Tables 5, 6, 7, 8, 9, 10.

Figure 1
Tables 5, 6, 7, 8, 9, 10

Gender (female) had a significant positive effect on all of the variables taken into account.

Socio-economic background of students had a strong positive effect on civic knowledge (average across countries 0.38), though a smaller effect compared to the other variables taken into account.

Student-level variables showed a significant positive effect on all the dependent variables taken into account.
As for school-level variables, only Principals' perceptions of student opportunities to participate in community activities showed a significant impact on civic knowledge, while Principals' perceptions of student influence on decisions about school showed a significant positive effect, though relatively small, on Student perceptions of openness in classroom discussions and Student civic participation at school. Principals' perceptions of teacher participation in school governance had a small but significant effect only on Students perceptions of openness in classroom discussions
It should be noted that school-level variables showed different effects across countries.

We applied the model for each national dataset separately in order to estimate the impact of variables at student and school level on the criterion variable in different countries.
Country by country analyses showed that the model fits satisfactorily for all countries, but Malta, Liechtenstein and Luxembourg.
On average, the model contributes to explain 20 % for civic knowledge, 4 % for Students' perceptions of openness in classroom discussions, 7% for Students' perceptions of the value of participation at school, 13% for Students' civic participation at school.
It should be noted that the percentage of explained variance varies between countries.

4. Discussion

4.1 It may be useful to compare the above mentioned findings to those from the area of educational research known as *school effectiveness research* (SER), focused on the impact of school variables on student outcomes.
Since its beginning, this line of research has been facing two recurring and intertwined issues. The first concerns the possibility of identifying factors and variables (both process and context variables) which correlate significantly with learning outcomes even after controlling the effect of socio-economic and cultural backgrounds on student outcomes. The second issue is related to the relationships between school and class levels: research studies show that class-level variables have a stronger impact on student achievement when compared to school-level variables or higher level factors.
The first issue has not only featured SER since its beginnings (Coleman, 1966) but has also proved to be an issue in which international research studies have been involved with over the years (Postlethwaite, Ross, 1992).
Results from SER seem to show that there are many other factors affecting student achievement that are beyond the control of the teacher, principal and educational system. Second, it shows the extent to which researchers find it difficult to identify effective educational practices (at least in large scale surveys).
However, several studies carried out on data from international surveys show that there are variables that prove to have an impact (though not very high) on student achievement, even after taking into account student economic and cultural backgrounds.

The first IEA Civic Education Study in 1971 found that encouragement of independent expression of opinion to be positive predictors of civic knowledge (Torney, Oppenheim & Farnen, 1975).
Analyses of CIVED data showed effects of school context such as average school home literacy or average perceptions of open classroom climate (Schulz, 2002)
Torney-Purta, Richardson and Barber (2005) found evidence of an influence of teachers' experience and confidence on students' civic knowledge in some of the CIVED countries included in the analysis.

A study carried out by Alivernini et al. (2001), a secondary analysis of PIRLS 2006 data from European Countries, investigates both the mutual influence and the impact of process, context and social factors on European student achievements by means of a Structural Equation Modeling (SEM). More precisely, the study takes into consideration the following context and process factors:

- Presence of qualified teaching staff
- Availability of school material
- Resources
- Frequency of reading homework
- Time spent by students in reading activities at school
- Teachers' career satisfaction.

Even if the variance in student learning outcomes explained by school and teacher variables decreases after accounting for SES variables, this study shows that those variables play a role in student achievement. Actually, this is the conclusion of the study (p. 3209):

> as concerns the school and teachers variables, they explain a small proportion of variance (3%). The material resources available in schools have a very small effect on reading literacy. This effect increases slightly if these material resources attract qualified teachers. In this context, the most important variable proves to be the time spent by students in reading activities at school which proves to have only an indirect effect on reading literacy, mediated by students' attitudes toward reading and students' reading self-concept.

As for TIMSS, the work of Drent, Meelissen, Van der Kleij (2010) con be considered as a useful point of reference. The study aims to summarize the empirical evidence of the impact, in different editions of TIMSS, of different variables on student achievement, after controlling for SES. In all the studies considered in their work, student achievement is controlled by socio-economic and cultural status variables.
As for the European countries, this study highlights significant relations between student achievement and characteristics of teaching and learning, at school and class levels, even after student SES variables were accounted for (see Table 11).

Table 11

It should be noted that some variables were found to be significantly positively associated with student achievement only in a few countries. Both statistical significance and the direction of the correlation vary across countries (from positive to negative), In addition, the variables showing correlation with student achievement, after accounting for SES, tend to be at class and teachers levels rather than at a school level. This evidence leads us directly to the second issue that, over decades, has characterized research on educational effectiveness: the mismatch between empirical supports provided by class and school level studies.

4.2 In the last decades, the conceptual models underpinning SER have increasingly taken into consideration the distinction between school and classroom levels. In 1994, Creemers elaborated the Comprehensive Model of Educational Effectiveness. The model recognizes the increased importance of the role of the teacher: mainly class-level variables seem to have a direct impact on student learning outcomes , which are in turn influenced by higher level factors (school, out of school context) that are affecting, however only indirectly, student achievements. Over last decade, more attention has been paid not only to account for the multilevel nature of educational effectiveness, but also to identify the relationships between factors (both operating at the same level

and at different levels) and to the ways they may change in relation to specific individual contexts (reference is made to the need to adopt also qualitative approaches). Creemers and Kyriakides, for example, elaborated the so-called "Dynamic Model of the educational effectiveness" (2008). This model takes into account the different levels at which student learning outcome may be influenced. The authors identified five dimensions to be taken into consideration when measuring school effectiveness: frequency, focus, stage, quality, differentiation. In all these dimensions, the "mediation" carried out by teaching and non-teaching staff at each level need to be considered.

International surveys mainly aim to develop comparison across countries, their aim it is not to compare individual schools. Consequently, it is not easy to draw empirical evidence on what and how schools and classes exert their influence on student achievement from the data they collect. In addition to that, this possibility may be affected by the sampling designs they adopt. In PISA, students are selected within each sampled school, so it is impossible to obtain evidences on the impact of different teaching and learning processes at the class level. In the IEA studies, sampling procedures involve the random selection of a class (or two) for each sampled school, and also in this case it is not easy to distinguish between the effect of school and class factors. Finally, as these studies are not longitudinal, it turns out that is somewhat impossible to look at changes over time, and consequently measure student progress in relation to process variables.

More in general, the greatest challenge the researcher interested in studying process and context variables in association with student learning outcomes has to face, is giving account for a context which, due to the high degree of autonomy of the "actors" more closely involved in and responsible for the learning process (the teachers), cannot be easily systematized. The risk is that of a "reduction" based on the assumption that the "higher levels" (organizational and administrative) have a direct impact on the lower ones.
In the absence of longitudinal data, the use of different data analysis procedures (such as multilevel analysis and path analysis) may help to pinpoint the "mediation" role played by different variables. Anyway, this is probably not enough by itself to measure the different factors which may more directly affect student achievement.
The challenge for international surveys is then describing more effectively the contexts where student learning takes place, attempting to take into account both the aims and the characteristics of large scale surveys and the specificity of school contexts.

References

Alivernini, F., Lucidi, F., Manganelli, S., Di Leo I. (2011). A map of factors influencing reading literacy across European countries: direct, indirect and moderating effects. *Social and Behavioral Sciences*, 15, 3205-3210.

Amadeo, J., Torney-Purta, J., Lehmann, R., Husfeldt, V., & Nikolova, R. (2002). *Civic knowledge and engagement: An IEA study of upper secondary students in sixteen countries*. Amsterdam: International Association for the Evaluation of Educational Achievement (IEA).

Ammermuller, A., Heijke, H., & Wossmann, L. (2005). Schooling quality in eastern Europe: Educational production during transition. *Economics of Education Review, 24*(5), 579-599.

Arbuckle, J. L. (2010). *IBM SPSS Amos 19 User's Guide* [Computer Program]. Chicago: SPSS.

Bankov, K., Mikova, D., & Smith, T. M. (2006). Assessing between-school variation in educational resources and mathematics and science achievement in Bulgaria. *Prospects: Quarterly Review of Comparative Education*, 36(4), 447-473.

Birzea, C., Kerr, D., Mikkelsen, R., Pol, M., Froumin, I., Losito, B., & Sardoc, M. (2004). *All-European Study on Education for Democratic Citizenship Policies*. Strasbourg: Council of Europe.

Caponera, E., Losito, B. (2011). *The roles of school and communities in civic and citizenship education.* Paper presented at the Annual Meetings of the American Educational Research Association (AERA) in New Orleans, 8-12 April.

CIDREE (2005). *Different faces of citizenship. Development of citizenship meducation in European countries.* Brussels: CIDREE.

Cox, C., Jaramillo, R. & Reimers, F. (2005). *Education for Citizenship and Democracy in the Americas: An Agenda for Action.* Washington D. C.: Inter-American Development Bank.

Coleman J.S. et al. (1966), *Equality of Education Opportunity*. Washington D. C.: Government Printing Office.

Creemers, B.P.M. (1994). *The effective classroom*. London: Cassell.

Creemers, B. P. M., Kyriakides, L. (2006). Critical analysis of the current approaches to modelling educational effectiveness: The importance of establishing a dynamic model. *School Effectiveness and School Improvement*, 17: 3, 347-366.

Creemers B.P.M., Kyriakides L. (2008). *The dynamics of educational effectiveness*. London: Routledge.

Drent, M., Meelissen, M.R.M., van der Kleij, F.M. (2010). *The contribution of TIMSS to theories of educational effectiveness: A systematic review of the literature.* http://www.iea.nl/fileadmin/user_upload/IRC/IRC_2010/Papers/IRC2010_Drent_Meelissen_etal.pdf

Dumay, X., Dupriez, V. (2007). Accounting for class effect using the TIMSS 2003 eighth-grade database: Net effect of group composition, net effect of class process, and joint effect. *School Effectiveness and School Improvement*, 18(4), 383-408.

Euridyce (2005). *Citizenship Education at School in Europe*. Brussels: Eurydice.

Istrate, O., Noveanu, G., Smith, T. M. (2006). Exploring sources of variation in Rumenian science achievement. *Prospects: Quarterly Review of Comparative Education*, 36(4), 475-496.

Kerr, D., Sturman, L., Schulz, W., Burge, B. (2010). *ICCS 2009 European report. Civic Knowledge, attitudes, and engagement among lower-secondary students in 24 European countries.* Amsterdam, The Netherlands: International association for the Evaluation of Educational Achievement (IEA).

Meelissen, M., Luyten, H. (2008). The Dutch gender gap in mathematics: Small for achievement, substantial for beliefs and attitudes. *Studies in Educational Evaluation*, 34(2), 82-93.

Postlethwaite, T.N., Ross, K.N. (1992). *Effective Schools In Reading: Implications for Educational Planners*. The Hague, The Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Reezigt, Gerry J. & Creemers, Bert P. M. (2005). A comprehensive framework for effective school improvement. *School Effectiveness and School Improvement*, 16:4, 407- 424.

Scheerens, J. (1990). School effectiveness and the development of process indicators of school functioning. *School effectiveness and school improvement*, 1, 61-80.

Schereens, J., Glas, C., S. Thomas M. (2003). *Educational Evaluation, Assessment, and Monitoring. A systemic Approach.* London and New York: Taylor and Francis.

Schulz, W. (2002). *Explaining Differences in Civic Knowledge: Multilevel Regression Analyses of Student Data from 27 Countries*. Paper presented at the Annual Meetings of the American Educational Research Association (AERA) in New Orleans, 1-5 April.

Schulz, W., Fraillon, J., Ainley, J., Losito, B., Kerr, D. (2008). *International Civic and Citizenship Education Study: Assessment Framework*. Amsterdam, The Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Schulz, W., Fraillon, J., Ainley, J., Kerr, D., Losito, B. (2010). *ICCS 2009 International Report: Civic knowledge, attitudes, and engagement among lower-secondary school students in 38 countries*. Amsterdam, The Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Torney, J. V., Oppenheim, A. N., & Farnen, R. F. (1975). *Civic education in ten countries: An empirical study*. New York: John Wiley and Sons.

Torney-Purta, J., Lehmann, R., Oswald, H., & Schulz, W. (2001). *Citizenship and Education in Twenty-eight Countries. Civic Knowledge and Engagement at Age Fourteen*. Amsterdam: IEA

Torney-Purta, J., Barber, C., & Wilkenfeld, B. (2007). Latino Adolescents' Civic Development in the United States: Research Results from the IEA Civic Education Study. *Journal of Youth and Adolescence*, 36(2), 111-125.

Torney-Purta, J., Richardson, W. K., Barber, C. H. (2005). Teachers' experience and sense of confidence in relation to students' civic understanding and engagement across countries. *International Journal of Citizenship and Teacher Education*, 1(1), 32-57.

Torney-Purta, J., Schwille, J., & Amadeo, J. A. (1999). *Civic education across countries: Twenty-four case studies from the IEA Civic Education Project.* Amsterdam, The Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Table 1. Constructs and variables investigated in ICCS and SER

Factors	Description	ICCS	Questionnaire (ScQ, TcQ)
Achievement, orientation, high expectations	- clear focus on the mastering of basic subjects - high expectations (school level) - high expectations (teacher level) - records on pupils' achievement	Teachers' use of assessment (TCASSESS) Principals' perceptions of school autonomy (SCAUTON)	TcQ ScQ
Educational leadership (general and instructional)	a. General leadership skills - school leader as information provider - orchestrator or participative decision making - school leader as coordinator - meta-controller of classroom processes - time educational/administrative leadership 11 - counselor and quality controller of classroom teachers - initiator and facilitator of staff professionalization b. Instructional leadership (teaching) - time of educational *vs* administrative tasks - frequent, personal monitoring on processes of effective teaching - counseling for the processes of effective teaching - successful grouping and organization - facilitator and promoter of teaching and non-teaching staff skills (site based and integrated with ongoing professional development)		
Consensus and cohesion among teaching and non-teaching staff	- types and frequency of meetings and consultations - contents of cooperation - satisfaction about cooperation - importance attributed to cooperation - indicators of successful cooperation	Principals' perceptions of teacher participation in school governance (SCTCPART) Principals' perceptions of teachers' sense of	ScQ

		belonging to school (TSCSBEL)	
Curriculum quality/ opportunity to learn	- the way curricular priorities are set - choice of methods and text books - application of methods and text books - opportunity to learn - satisfaction with the curriculum		
School climate (regarded as school culture and characterized by an orderly environment and an outcome-oriented school policy)	Orderly atmosphere - the importance given to an orderly climate - rules and regulations - punishment and rewarding - absenteeism and drop out - good conduct and behaviour of pupils - satisfaction with orderly school climate Climate in terms of effectiveness orientation and good internal relationships - priorities in an effectiveness-enhancing school climate - perceptions on effectiveness-enhancing conditions - relationships between pupils - relationships between teacher and pupils - relationships between staff - relationships: the role of the head teacher - engagement of pupils - appraisal of roles and tasks - job appraisal in terms of facilities, conditions of labour, task load and - general satisfaction - facilities and building	Principals' perceptions of student behaviour at school (CSTUDBEH) Teachers' perceptions of student behaviour at school (TSTSBEH) Principals' perceptions of students' sense of belonging to school (SSCSBEL) Principals' perceptions of non-teaching staff's sense of belonging to school (NSCSBEL) Principals' perceptions of social problems at school (CSCPROB) Teachers' perceptions of social problems at school (TSCPROB) Teachers' perception of student influence on decisions about school	ScQ TcQ ScQ ScQ ScQ TcQ TcQ

		(TSTUDINF)	
Evaluative potential (evaluation and monitoring emphasis, standardized and computerized monitoring, use of evaluation results)	- evaluation emphasis - monitoring pupils' progress - use of pupil monitoring systems - school process evaluation - use of evaluation results - keeping records on pupils' performance - satisfaction with evaluation activities		
Parental involvement	- emphasis on parental involvement in school policy - contacts with parents - satisfaction with parental involvement -	Principals' perceptions of parents' participation in the school life (SCPARACT)	ScQ
Classroom climate (order, good relationships and satisfaction)	- relationships within the classroom - order - work attitude - satisfaction	Teachers' perceptions of classroom climate (TCLCLIM) Teachers' reports on CCE activities in class (TCIVACT) Teacher reports of student participation in class activities (TSTCLACT)	TcQ TcQ TcQ
Effective learning time	- importance of effective learning - time - monitoring of absenteeism - time at school - time at classroom level - classroom management - homework		
Structured teaching	Importance of structured teaching - lesson plans	Confidence in teaching methods	TcQ

	- advance lesson organizer - direct instruction (the teacher actively orders and controls the teaching) - frequent monitoring	(CONFTCH)	
Autonomous and self-regulated learning	- attention to autonomous learning in setting tasks and plans - encouraging pupils to check their actions - investing pupils with responsibility towards their learning - stimulating learning by cooperation		
Differentiation/adaptive instruction (in terms of specific needs of small groups of pupils)	a) General orientation - attention to the special needs of educationally disadvantaged pupils when setting out objectives, - minimum standard objectives for all pupils - grouping of pupils in the classroom (by age, level, interests, no grouping) - grouping of school pupils by levels - pupils' group work method - grouping criteria - individual work/ pair work - % of teacher time devoted to communicating with the class, groups and individual students b) Special attention to pupils placed at risk		
Positive reinforcement and feedback			

Table 2. Principals' ratings of the most important aims of civic and citizenship education (in national percentages of principals)

Country	Promoting knowledge of social, political and civic institutions		Promoting respect for and safeguard of the environment		Promoting the capacity to defend one's own point of view		Developing students' skills and competencies in conflict resolution		Promoting knowledge of citizens' rights and responsibilities		Promoting students' participation in the local community		Promoting students' critical and independent thinking		Promoting students' participation in school life		Supporting the development of effective strategies for the fight against racism and xenophobia		Preparing students for future political engagement	
Austria	33 (5.1)		12 (3.8)	▼	25 (4.7)		42 (4.6)	▲	10 (3.2)	▼	3 (1.9)	▼	51 (5.4)	▼	5 (2.2)	▼	12 (3.5)		14 (3.7)	
Belgium (Flemish) †	26 (5.0)	▼	42 (4.5)	▲	40 (4.7)	▲	59 (4.8)	▲	19 (4.6)	▼	10 (2.9)		61 (5.0)		30 (4.1)	▲	9 (2.4)		4 (3.2)	▽
Bulgaria	43 (6.0)		27 (4.0)		28 (5.8)	▲	27 (4.3)		72 (4.6)	▲	19 (4.6)		45 (4.5)	▼	31 (5.0)	▲	1 (0.6)	▽	5 (1.6)	▽
Cyprus	55 (7.2)	▲	21 (4.8)		22 (6.2)		22 (6.2)		66 (6.8)		10 (3.5)		60 (6.3)		21 (5.5)		14 (4.8)		9 (3.9)	
Czech Republic †	46 (4.9)		32 (4.2)		36 (4.2)	▲	31 (4.2)		73 (3.7)	▲	16 (3.3)		45 (3.9)	▼	13 (2.8)		6 (2.2)		2 (1.3)	▽
Denmark †	54 (5.0)	▲	15 (3.7)	▼	7 (2.3)	▽	46 (4.5)	▲	43 (4.6)	▼	13 (2.5)		81 (3.6)	▲	4 (1.4)	▼	15 (4.0)		23 (3.4)	▲
England ‡	38 (6.4)		24 (5.7)		3 (1.3)	▼	19 (4.9)	▼	70 (4.8)		45 (5.8)	▲	45 (6.4)	▼	32 (5.8)	▲	10 (2.9)		13 (3.0)	
Estonia	72 (4.0)	▲	11 (3.2)	▼	19 (4.8)		13 (2.9)	▼	87 (3.8)	▲	9 (3.8)		75 (5.0)	▲	8 (2.0)	▼	0 (0.0)	▽	5 (1.9)	▽
Finland	47 (4.5)		49 (4.7)	▲	9 (3.8)		36 (3.8)		44 (4.0)	▼	10 (2.4)	▽	84 (2.8)	▲	10 (2.7)	▽	6 (2.6)		4 (1.7)	▽
Greece	57 (7.1)	▲	12 (3.2)	▼	23 (5.8)		21 (6.1)		69 (5.7)		6 (2.5)	▽	47 (6.3)	▼	10 (3.9)	▽	4 (1.9)	▽	53 (7.0)	▲
Ireland	72 (4.9)	▲	41 (4.5)	▲	3 (2.0)	▼	12 (2.9)	▼	75 (4.4)	▲	33 (5.7)	▲	41 (5.5)	▼	9 (2.7)	▽	4 (1.9)	▽	9 (3.2)	
Italy	61 (4.2)	▲	20 (3.2)	▽	5 (2.2)	▼	25 (4.5)		85 (3.5)	▲	25 (4.8)	△	64 (4.9)		6 (1.4)	▼	8 (3.1)		1 (0.4)	▼
Latvia	32 (4.7)	▽	10 (2.6)	▼	34 (5.7)	▲	15 (4.3)	▼	76 (5.0)	▲	17 (4.1)		66 (5.6)		31 (5.8)	▲	1 (0.6)	▽	17 (4.8)	
Liechtenstein	22 (15.9)	▼	44 (20.0)	▲	0 (0.0)	▼	44 (16.3)	▲	44 (20.0)	▼	0 (0.0)	▼	78 (15.9)	▲	11 (11.2)		22 (2.2)	▲	33 (19.5)	▲
Lithuania	22 (3.5)	▼	48 (6.4)	▲	10 (2.7)	▽	11 (2.3)	▼	63 (5.8)		31 (5.5)	▲	68 (5.8)		44 (6.9)	▲	3 (2.6)	▽	1 (0.3)	▼
Luxembourg	68 (12.0)	▲	18 (9.1)	▼	5 (4.6)	▼	23 (10.2)		59 (7.9)		9 (6.4)		59 (10.2)		23 (4.6)		18 (6.4)		18 (9.1)	
Malta	13 (5.0)	▼	55 (6.6)	▲	11 (3.8)		32 (5.5)		70 (5.2)		25 (5.0)		66 (5.8)		21 (5.6)		6 (3.3)		0 (0.0)	▼
Poland	36 (5.9)		21 (4.7)		11 (2.9)	▽	32 (5.3)		66 (6.0)		44 (5.2)	▲	33 (4.7)	▼	34 (5.6)	▲	2 (1.0)	▽	20 (5.5)	
Slovak Republic[1]	40 (4.9)		35 (5.0)		12 (3.8)		44 (5.2)	▲	70 (5.5)		15 (4.2)		58 (5.0)		11 (3.1)	▽	12 (3.6)		3 (1.8)	▽
Slovenia	30 (4.4)	▼	48 (3.9)	▲	29 (5.4)	▲	26 (3.8)		63 (4.3)		5 (1.9)	▼	72 (4.8)	▲	21 (5.0)		4 (1.5)	▽	3 (1.4)	▽
Spain	24 (4.2)	▼	26 (4.6)		6 (2.0)	▼	52 (5.2)	▲	77 (4.2)	▲	5 (2.1)	▼	73 (4.7)	▲	15 (3.5)		18 (4.5)	△	3 (1.6)	▽
Sweden	21 (3.7)	▼	24 (4.7)		16 (3.6)		23 (4.5)		79 (5.0)	▲	1 (0.7)	▼	89 (3.6)	▲	13 (4.3)		31 (6.0)	▲	3 (2.4)	▽
Switzerland †	48 (6.5)	□	28 (5.2)	□	23 (6.0)	□	44 (6.0)	▲	36 (5.0)	▼	13 (4.8)	□	64 (5.8)	□	8 (2.2)	▼	5 (1.8)	▽	32 (4.9)	▲
ICCS European average	42 (1.1)		29 (1.1)		16 (0.7)		30 (1.1)		61 (1.1)		16 (0.7)		62 (1.1)		18 (0.8)		9 (0.6)		12 (1.0)	

Countries not meeting sampling requirements

Netherlands	40	(8.0)	22	(6.5)	28	(8.8)	64	(7.3)	22	(7.6)	13	(6.8)	69	(8.4)	15	(4.6)	12	(6.6)	13	(5.7)

National percentage	
more than 10 percentage points above ICCS European average	▲
significantly above ICCS European average	△
significantly below ICCS European average	▽
more than 10 percentage points below ICCS European average	▼

() Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired Population

Table 3. National averages for students' reports on opportunities for learning about Europe at school

Educational system	Average scale score	
Austria	53 (0.2)	△
Belgium (Flemish) †	47 (0.3)	▽
Bulgaria	54 (0.3)	▲
Cyprus	52 (0.3)	△
Czech Republic †	51 (0.2)	△
Denmark †	49 (0.3)	▽
England ‡	51 (0.3)	△
Estonia	49 (0.3)	▽
Finland	48 (0.2)	▽
Greece	49 (0.3)	▽
Ireland	50 (0.3)	
Italy	53 (0.2)	▲
Latvia	50 (0.3)	
Liechtenstein	47 (0.5)	▽
Lithuania	50 (0.2)	▽
Luxembourg	50 (0.2)	▽
Malta	55 (0.3)	▲
Poland	50 (0.3)	
Slovak Republic[1]	48 (0.2)	▽
Slovenia	50 (0.3)	
Spain	50 (0.3)	
Sweden	46 (0.3)	▼
Switzerland †	47 (0.3)	▼
ICCS European average	**50 (0.1)**	
Countries not meeting sampling requirements		
Netherlands	48 (0.3)	

more than 3 score points above ICCS European average	▲
significantly above ICCS European average	△
significantly below ICCS European average	▽
more than 3 score points below ICCS European average	▼

() Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired Population.

Table 4. Principals' reports on participation of target grade classes in community activities (in national percentages of students)

Percentages of students at schools where principals reported that all, nearly all or most students at their school had the opportunity to take part in:

Country	Activities related to the environment, geared to the local area		Human rights projects		Activities related to under-privileged people or groups		Cultural activities (for example, theatre, music, cinema)		Multicultural and intercultural activities within the local community		Campaigns to raise people's awareness, such as <AIDS World Day, World No Tobacco Day>		Activities related to improving facilities for the local community		Participating in sports events	
Austria	32 (4.2)	▼	27 (4.3)	▽	33 (4.6)		87 (3.2)	△	18 (3.6)	▼	65 (4.3)		11 (3.0)	▼	84 (3.5)	
Belgium (Flemish) †	63 (4.1)	▲	45 (4.8)	△	68 (4.7)	▲	95 (1.5)	▲	33 (4.8)		73 (3.5)	▲	12 (2.5)	▼	88 (2.6)	
Bulgaria	46 (4.6)		8 (2.6)	▼	24 (3.5)	▼	75 (3.7)		36 (4.8)		76 (3.4)	▲	37 (4.2)	▲	85 (3.1)	
Cyprus	21 (0.2)	▼	19 (0.2)	▼	11 (0.1)	▼	41 (0.3)	▼	26 (0.2)	▽	19 (0.2)	▼	13 (0.1)	▼	46 (0.3)	▼
Czech Republic †	74 (4.1)	▲	42 (5.0)		34 (4.7)		98 (1.0)	▲	51 (4.8)	▲	77 (4.1)	▲	28 (4.3)		87 (2.9)	
Denmark †	22 (3.7)	▼	24 (3.8)	▼	25 (3.8)	▼	80 (3.1)		18 (3.6)	▼	18 (3.5)	▼	26 (3.8)		74 (3.9)	▽
England ‡	49 (5.3)		47 (5.1)	▲	70 (3.9)	▲	89 (3.3)	△	40 (5.5)		66 (4.7)		24 (4.6)		96 (2.2)	▲
Estonia	76 (3.8)	▲	22 (3.7)	▼	15 (2.9)	▼	99 (1.1)	▲	40 (3.9)	△	78 (3.5)	▲	56 (4.7)	▲	99 (0.9)	▲
Finland	39 (3.3)	▽	15 (3.2)	▼	48 (4.2)	▲	82 (2.9)		28 (3.7)		88 (2.6)	▲	32 (3.9)		86 (2.5)	
Greece	25 (3.5)	▼	10 (2.8)	▼	13 (3.4)	▼	41 (4.1)	▼	11 (2.8)	▼	22 (3.4)	▼	6 (2.1)	▼	50 (4.8)	▼
Ireland	40 (3.7)		39 (4.6)		33 (4.3)		52 (4.4)	▼	18 (3.4)	▼	21 (3.5)	▼	10 (2.7)	▼	79 (3.9)	
Italy	60 (4.3)	▲	66 (3.6)	▲	44 (3.8)	△	82 (3.1)		47 (3.7)	▲	56 (3.8)		24 (3.6)		81 (2.8)	
Latvia	43 (4.2)		30 (4.1)		31 (4.9)		96 (1.8)	▲	47 (4.4)	▲	53 (4.8)		65 (4.2)	▲	98 (1.2)	▲
Liechtenstein	32 (0.4)	▼	59 (0.4)	▲	59 (0.4)	▲	87 (0.3)	△	0 (0.0)	▼	75 (0.4)	▲	13 (0.3)	▼	87 (0.3)	△
Lithuania	55 (4.3)		28 (4.2)		20 (3.3)	▼	76 (3.4)		51 (3.5)	▲	67 (4.1)		63 (3.9)	▲	97 (1.5)	▲
Luxembourg	23 (1.4)	▼	32 (2.2)		39 (2.3)		63 (2.2)	▼	35 (2.2)		74 (1.8)	▲	0 (0.0)	▼	75 (2.3)	▽
Malta	42 (0.9)	▽	38 (0.9)		48 (0.9)	▲	65 (0.9)	▼	19 (0.6)	▼	39 (0.9)	▼	13 (0.4)	▼	94 (0.1)	▲
Poland	63 (4.1)	▲	51 (4.3)	▲	50 (4.1)	▲	88 (2.7)	△	33 (4.3)		92 (2.1)	▲	22 (3.6)		92 (2.2)	△
Slovak Republic[1]	74 (3.6)	▲	50 (4.5)	▲	34 (4.1)		93 (2.2)	▲	53 (4.5)	▲	63 (4.2)		36 (4.3)	▲	94 (1.9)	▲
Slovenia	68 (3.4)	▲	49 (4.6)	▲	39 (4.4)		90 (2.2)	▲	46 (3.7)	▲	85 (2.8)	▲	31 (3.4)		89 (2.7)	△
Spain	63 (4.3)	▲	52 (4.2)	▲	44 (3.9)	△	86 (2.3)	△	34 (4.1)		72 (4.0)	▲	14 (2.9)	▼	76 (3.9)	▽
Sweden	35 (4.1)	▼	47 (4.1)	▲	34 (4.1)		92 (2.2)	▲	27 (3.3)		30 (4.2)	▼	20 (3.5)		81 (3.3)	
Switzerland †	38 (6.1)	□	15 (3.2)	▼	12 (3.2)	▼	85 (3.0)	□	13 (2.5)	▼	52 (4.8)	□	13 (2.8)	▼	94 (2.1)	△
ICCS European average	47 (0.7)		35 (0.7)		36 (0.7)		80 (0.5)		31 (0.7)		59 (0.6)		25 (0.6)		84 (0.5)	

Countries not meeting sampling requirements

Netherlands	25	(9.4)		24	(7.2)		42	(8.8)		82	(7.7)		23	(9.3)		29	(10.3)		16	(5.2)		82	(5.1)

National percentage	
more than 10 percentage points above ICCS European average	▲
significantly above ICCS European average	△
significantly below ICCS European average	▽
more than 10 percentage points below ICCS European average	▼

() Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired Population.

Table 5. Summary of average model coefficients

	Standardised path coefficients			
Predictor variables	**Civic knowledge**	**Students' perceptions of openness in classroom discussions**	**Students' perceptions of the value of participation at school**	**Students' civic participation at school**
Student'gender (female)	**0.07**	**0.16**	**0.06**	**0.09**
Socio-economic background	**0.36**	**0.08**	**0.10**	**0.09**
Principal perceptions of student opportunities to participate in community activities	**0.06**		-0.02	-0.01
Principals' perceptions of teacher participation in school governance	0.01	**0.04**		-0.02
Principals' perceptions of student influence on decisions about school	0.01	**0.04**	0.00	**0.03**
Civic knowledge				**0.07**
Students' perceptions of openness in classroom discussions	**0.18**	**-0.02**	**0.22**	**0.16**
Students' perceptions of the value of participation at school				**0.19**

Correlation between criterion variables

	Civic knowledge
Students' perceptions of the value of participation at school	**0.16**

Coefficients with an average significant across countries (p>0.05) in **bold.**

	Civic knowledge	**Students' perceptions of openness in classroom discussions**	**Students' perceptions of the value of participation at school**	**Students' civic participation at school**
Principals' perceptions of student opportunities to participate in community activities	**0.06**		-0.02	-0.01
Principals' perceptions of teacher participation in school governance	0.01	**0.04**		-0.02
Principals' perceptions of student influence on decisions about school	0.01	**0.04**	0.00	**0.03**

Table 6. **Model fit indices and explained variance of dependent variables**

	Model fit			% explained variance			
Country	**RMSEA**	**(Lo 10; Hi 90)**	**RMR**	**Civic knowledge**	**Students' perceptions of openness in classroom discussions**	**Students' perceptions of the value of participation at school**	**Students' civic participation at school**
Austria	0.03	(0.02; 0.05)	0.02	17	3	6	7
Belgium (Flemish) †	0.04	(0.03; 0.05)	0.02	15	3	3	12
Bulgaria	0.03	(0.02; 0.04)	0.01	33	6	8	15
Cyprus	0.00	(0.00; 0.02)	0.01	19	1	10	19
Czech Republic †	0.04	(0.03; 0.05)	0.02	16	5	6	18
Denmark †	0.04	(0.03; 0.05)	0.02	22	4	5	14
England ‡	0.06	(0.05; 0.08)	0.03	29	6	11	20
Estonia	0.02	(0.00; 0.04)	0.01	17	4	8	10
Finland	0.01	(0.00; 0.03)	0.01	15	2	5	12
Greece	0.03	(0.02; 0.05)	0.02	21	3	10	10
Ireland	0.06	(0.05; 0.08)	0.03	22	5	11	14
Italy	0.04	(0.03; 0.05)	0.02	20	4	6	6
Latvia	0.02	(0.01; 0.04)	0.01	16	3	10	17

Liechtenstein	0.11	(0.08; 0.15)	0.05	25	9	4	11
Lithuania	0.01	(0.00; 0.03)	0.01	18	5	6	15
Luxembourg	0.07	(0.06; 0.09)	0.04	23	2	6	9
Malta	0.15	(0.13; 0.16)	0.07	24	8	6	12
Poland	0.02	(0.01; 0.04)	0.01	21	4	8	18
Slovak Republic[1]	0.01	(0.00; 0.03)	0.01	18	5	8	11
Slovenia	0.03	(0.01; 0.04)	0.01	19	4	7	14
Spain	0.05	(0.04; 0.06)	0.03	20	5	7	12
Sweden	0.01	(0.00; 0.03)	0.01	23	4	11	16
Switzerland †	0.04	(0.02; 0.05)	0.02	19	6	4	8
ICCS European average	0.04	(0.03; 0.06)	0.02	20	4	7	13

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired population.

Table 7. Country-level path coefficients for Student perceptions of openness in classroom discussions

Country	Student'gender (female)	Socio-economic background	Principals' perceptions of student opportunities to participate in community activities	Principals' perceptions of teacher participation in school governance	Principals' perceptions of student influence on decisions about school
Austria	**0.16**	**0.05**	0.00	-0.03	0.01
Belgium (Flemish) †	**0.16**	0.00	-0.02	**0.04**	0.03
Bulgaria	**0.17**	**0.17**	**0.05**	-0.02	0.02
Cyprus	**0.11**	0.04	0.02	-0.03	0.00
Czech Republic †	**0.21**	**0.05**	**0.07**	0.02	**0.05**
Denmark †	**0.11**	**0.15**	**0.04**	-0.03	-0.03
England ‡	**0.15**	**0.17**	0.01	0.01	**0.07**
Estonia	**0.17**	**0.09**	0.04	0.00	-0.03
Finland	**0.09**	**0.04**	-0.01	**0.07**	0.02
Greece	**0.12**	**0.11**	0.04	0.01	**-0.05**
Ireland	**0.20**	**0.12**	-0.01	0.02	-0.04
Italy	**0.16**	**0.09**	-0.02	**0.05**	**-0.05**
Latvia	**0.15**	**0.05**	**0.05**	-0.03	0.00
Liechtenstein	**0.15**	**0.11**	0.02	**0.20**	**0.13**
Lithuania	**0.23**	0.00	-0.03	**0.04**	0.03
Luxembourg	**0.13**	0.01	-0.01	0.03	-0.01
Malta	**0.19**	**0.17**	**0.11**	0.01	**0.06**
Poland	**0.20**	**0.05**	**-0.04**	0.02	0.00
Slovak Republic[1]	**0.21**	0.03	0.03	0.02	0.03
Slovenia	**0.20**	0.01	-0.01	0.01	0.01
Spain	**0.21**	0.03	0.02	**0.07**	-0.01
Sweden	**0.16**	**0.10**	0.04	**0.05**	0.02
Switzerland †	**0.07**	-0.01	**-0.10**	**0.16**	**0.12**
ICCS European average	**0.16**	**0.07**	0.01	0.03	0.02

Significant coefficients (p>0.05) in **bold**.

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired population.

Table 8. Country-level path coefficients for Students' civic participation at school

Country	Student'gender (female)	Socio-economic background	Civic knowledge	Students' perceptions of openness in classroom discussions	Students' perceptions of the value of participation at school	Principals' perceptions of student opportunities to participate in community activities	Principals' perceptions of teacher participation in school governance	Principals' perceptions of student influence on decisions about school
Austria	0.01	**0.09**	0.02	**0.15**	**0.16**	-0.01	0.02	0.00
Belgium (Flemish) †	**0.09**	**0.13**	**0.12**	**0.14**	**0.15**	-0.03	0.02	-0.03
Bulgaria	**0.10**	0.04	**0.05**	**0.18**	**0.22**	0.03	-0.01	0.02
Cyprus	**0.05**	**0.12**	**0.23**	**0.11**	**0.18**	-0.01	0.01	**0.01**
Czech Republic †	**0.12**	**0.10**	**0.15**	**0.18**	**0.17**	0.01	**-0.04**	**0.04**
Denmark †	**0.05**	**0.07**	**0.17**	**0.15**	**0.16**	0.03	-0.02	**0.07**
England ‡	**0.09**	**0.21**	**0.14**	**0.09**	**0.19**	0.02	0.02	0.00
Estonia	**0.15**	0.02	0.04	**0.13**	**0.16**	-0.01	0.01	-0.02
Finland	**0.08**	**0.13**	**0.08**	**0.14**	**0.17**	0.04	0.03	0.00
Greece	0.01	**0.07**	**0.13**	**0.16**	**0.07**	**0.04**	-0.01	**-0.05**
Ireland	**0.14**	**0.13**	0.00	**0.17**	**0.17**	-0.02	-0.01	0.00
Italy	**0.04**	**0.09**	0.00	**0.12**	**0.13**	**0.04**	**-0.07**	-0.02
Latvia	**0.17**	**0.09**	**0.06**	**0.17**	**0.19**	**-0.06**	0.00	**-0.04**

Liechtenstein	**0.11**	0.05	-0.02	**0.18**	**0.19**	0.01	-0.07	0.06
Lithuania	**0.19**	**0.06**	0.01	**0.21**	**0.15**	**0.04**	-0.02	-0.02
Luxembourg	0.02	**0.07**	0.03	**0.19**	**0.15**	**0.05**	-0.01	**-0.04**
Malta	0.00	**0.11**	**0.07**	**0.15**	**0.14**	**0.07**	**0.07**	0.04
Poland	**0.15**	**0.07**	**0.21**	**0.13**	**0.15**	-0.01	0.00	0.02
Slovak Republic[1]	**0.15**	**0.07**	0.03	**0.15**	**0.16**	-0.02	0.02	0.02
Slovenia	**0.09**	**0.12**	**0.17**	**0.07**	**0.16**	0.01	**0.04**	-0.01
Spain	**0.04**	**0.08**	**0.09**	**0.21**	**0.12**	0.01	**0.04**	0.00
Sweden	0.03	**0.08**	**0.15**	**0.14**	**0.20**	**0.06**	-0.02	-0.02
Switzerland †	**0.08**	**0.08**	**0.06**	**0.15**	**0.14**	0.03	**-0.05**	**0.04**
ICCS European average	**0.08**	**0.09**	**0.09**	**0.15**	**0.16**	0.01	0.00	0.00

Significant coefficients (p>0.05) in **bold**.

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired population.

Table 9. Country-level path coefficients for Civic knowledge

Country	Student' gender (female)	Socio-economic background	Students' perceptions of openness in classroom discussions	Principals' perceptions of student opportunities to participate in community activities	Principals' perceptions of teacher participation in school governance	Principals' perceptions of student influence on decisions about school
Austria	**0.07**	**0.38**	**0.11**	-0.01	-0.03	0.03
Belgium (Flemish) †	0.01	**0.37**	**0.08**	**0.08**	0.02	-0.03
Bulgaria	**0.09**	**0.46**	**0.25**	0.03	-0.02	-0.02
Cyprus	**0.19**	**0.32**	**0.19**	-0.04	**-0.04**	0.00
Czech Republic †	**0.07**	**0.35**	**0.14**	0.00	**-0.06**	**0.03**
Denmark †	0.03	**0.41**	**0.17**	0.01	0.01	-0.01
England ‡	**0.07**	**0.43**	**0.23**	0.02	-0.01	**0.05**
Estonia	**0.14**	**0.35**	**0.08**	-0.01	-0.01	**-0.06**
Finland	**0.13**	**0.34**	**0.07**	**0.05**	0.00	**-0.05**
Greece	**0.14**	**0.29**	**0.27**	-0.03	0.03	0.02
Ireland	**0.04**	**0.40**	**0.19**	**0.05**	0.02	-0.03
Italy	**0.07**	**0.37**	**0.19**	0.03	**0.04**	**-0.06**
Latvia	**0.15**	**0.31**	**0.13**	0.03	**-0.09**	**0.05**
Liechtenstein	0.06	**0.42**	0.00	**-0.12**	**-0.21**	0.07
Lithuania	**0.15**	**0.37**	**0.11**	**-0.05**	0.02	0.00
Luxembourg	0.00	**0.44**	**0.12**	0.02	**-0.12**	**0.17**
Malta	**0.14**	**0.30**	**0.17**	**-0.06**	0.02	**0.25**
Poland	**0.14**	**0.39**	**0.15**	**0.04**	0.00	-0.01
Slovak Republic[1]	**0.06**	**0.38**	**0.15**	**0.06**	0.02	-0.01
Slovenia	**0.13**	**0.34**	**0.19**	0.01	**0.07**	-0.03
Spain	**0.09**	**0.40**	**0.13**	0.00	**0.07**	-0.01
Sweden	**0.06**	**0.41**	**0.19**	0.00	0.03	0.01
Switzerland †	**0.05**	**0.40**	**0.11**	**-0.05**	0.03	**0.06**
ICCS European average	**0.09**	0.38	0.15	0.00	-0.01	0.02

Significant coefficients (p>0.05) in **bold**.

† Met guidelines for sampling participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired population.

Table 10. Country-level path coefficients for Students' perceptions of the value of participation at school

Country	Student'gender (female)	Socio-economic background	Students' perceptions of openness in classroom discussions	Principals' perceptions of student opportunities to participate in community activities	Principals' perceptions of teacher participation in school governance	Principals' perceptions of student influence on decisions about school
Austria	**0.06**	**0.09**	**0.20**	-0.01	0.00	0.04
Belgium (Flemish) †	-0.03	**0.10**	**0.15**	0.00	**-0.05**	-0.02
Bulgaria	**0.08**	**0.14**	**0.20**	0.01	-0.03	0.02
Cyprus	**0.18**	**0.11**	**0.21**	-0.01	-0.02	-0.03
Czech Republic †	**0.05**	**0.11**	**0.20**	0.02	0.00	-0.01
Denmark †	-0.01	**0.08**	**0.18**	0.03	**-0.04**	0.03
England ‡	0.02	**0.10**	**0.29**	0.00	**0.05**	-0.02
Estonia	**0.15**	**0.12**	**0.18**	-0.02	0.02	-0.01
Finland	**0.11**	**0.06**	**0.16**	0.02	0.01	0.03
Greece	**0.11**	**0.07**	**0.25**	**-0.05**	**-0.04**	0.03
Ireland	**0.11**	**0.12**	**0.25**	**-0.05**	**0.06**	-0.01
Italy	0.03	**0.09**	**0.21**	-0.02	0.00	0.00
Latvia	**0.14**	0.03	**0.26**	0.01	-0.03	0.02
Liechtenstein	0.06	0.08	**0.15**	-0.03	-0.03	0.03
Lithuania	**0.11**	**0.14**	**0.13**	**0.05**	-0.01	-0.02
Luxembourg	**0.05**	0.02	**0.23**	0.03	**-0.07**	0.02
Malta	**0.07**	0.02	**0.18**	-0.01	0.00	**0.11**
Poland	**0.11**	**0.09**	**0.23**	0.02	0.00	0.02
Slovak Republic[1]	0.02	**0.10**	**0.25**	0.02	0.03	0.00
Slovenia	**0.06**	**0.09**	**0.22**	0.00	0.03	**-0.05**
Spain	**0.05**	**0.11**	**0.21**	0.00	0.02	0.01

Sweden	**0.06**	**0.10**	**0.28**	0.02	0.03	0.00
Switzerland †	**0.06**	**0.08**	**0.13**	**0.07**	**-0.08**	0.04
ICCS European average	**0.07**	**0.09**	**0.21**	0.00	-0.01	0.01

Significant coefficients (p>0.05) in **bold**.

† Met guidelines for sampling participation rates only after replacement schools were included.

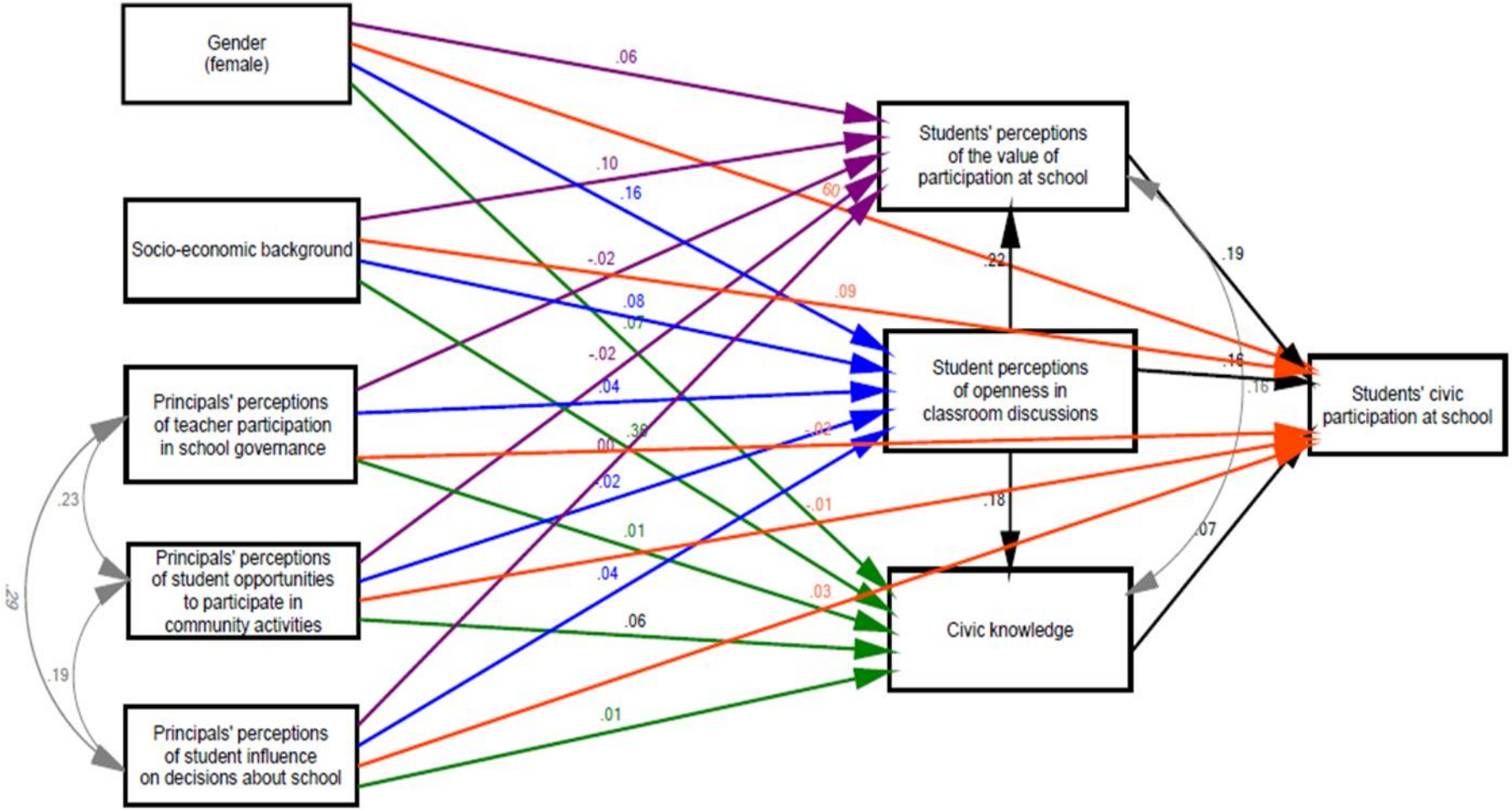
‡ Nearly satisfied guidelines for sample participation only after replacement schools were included.

[1] National Desired Population does not cover all of International Desired population.

Table 11. School-level variables and student achievement in TIMSS

VARIABLE	PAPER/ARTICLE	GRADE /SUBJECT	COUNTRIES
Academic climate	Istrate, O., Noveanu, G., Smith, T. M. (2006)	8 / SCI	Rumania
Safety in the school	Meelissen, M., Luyten, H. (2008).	4 / MAT	Netherlands
Ability grouping	Meelissen, M., Luyten, H. (2008).	4 / MAT	Netherlands
Amount of homework	Ammermuller, A., Heijke, H., Wossmann, L. (2005)	7-8 / MAT, SCI	Czech Republic, Hungary, Slovak Republic, Slovenia, Latvia, Lithuania, Rumania
Number of topics taught	Bankov, K., Mikova, D., Smith, T. M. (2006)	8 /MAT	Bulgaria
	Meelissen, M., Luyten, H. (2008).	4 / MAT	Netherlands
Use of inquiry in science	Bankov, K., Mikova, D., Smith, T. M. (2006)	8 /MAT	Bulgaria
	Istrate, O., Noveanu, G., Smith, T. M. (2006)	8 / SCI	Rumania
Sudent oriented teaching (neg)	Meelissen, M., Luyten, H. (2008)	4 / MAT	Netherlands

Figure 1


Gender (female)
Socio-economic background
Principals' perceptions of teacher participation in school governance
Principals' perceptions of student opportunities to participate in community activities
Principals' perceptions of student influence on decisions about school
Students' perceptions of the value of participation at school
Student perceptions of openness in classroom discussions
Civic knowledge
Students' civic participation at school
.06
.10
.16
.60
-.02
.08
.07
-.02
.04
.36
.00
.02
.01
.04
.06
.01
.09
.22
.19
.16
.16
.18
.07
-.01
.03
.23
.29
.19