EMIL SMITH, DAVID REIMER,
IDA GRAN ANDERSEN, BENT SORTKÆR

EXPLORING SCHOOL CULTURE: TECHNICAL REPORT FOR DATA COLLECTION

DPU
AARHUS UNIVERSITET

Emil Smith, David Reimer,
Ida Gran Andersen, Bent Sortkær

Exploring School Culture: Technical report for data collection

DPU, Aarhus University 2021

Titel:
Exploring School Culture: Technical report for data collection

Forfatter:
Emil Smith, David Reimer, Ida Gran Andersen, Bent Sortkær

Udgivet af:
DPU, Aarhus Universitet, 2021

1. udgave

Omslag og grafisk tilrettelæggelse:
Knud Holt Nielsen

Forsidefoto: Colourbox.com

ISBN: 978-87-7684-517-9
DOI: 10.7146/aul.403

Table of Contents

1. INTRODUCTION **5**

2. SURVEY DEVELOPMENT AND VALIDATION **6**

3. SAMPLING PROCESS **11**

4. RECRUITMENT & NON-RESPONSE **13**

4. 1. SCHOOL-LEVEL NON-RESPONSE 13

5. RECORD LINKAGE TO DANISH ADMINISTRATIVE REGISTERS AND COMPARISONS WITH FULL STUDENT POPULATION **15**

6. REFERENCES **18**

APPENDIX 1 - ESCU STUDENT QUESTIONNAIRE – ENGLISH VERSION **19**

APPENDIX 2 - ESCU TEACHER QUESTIONNAIRE – ENGLISH VERSION **28**

1. Introduction

This report describes the process of selecting and recruiting schools, classes and teachers to take part in the *Exploring School Culture* (ESCU) survey.

The ESCU survey was part of the "Exploring School Culture" research project[1], funded by the Velux foundation. The survey was conducted among Danish 6th and 9th grade students and their respective teachers in the subjects mathematics and Danish during spring 2019.

The following topics will be addressed:

- Survey development and validation
- Sampling process
- Recruitment
- Non-response
- Comparison of respondents to full student population.

The full questionnaires are provided in the appendix.

[1] Grant number 00017032, principal investigator David Reimer, see https://projekter.au.dk/en/escu-exploring-school-culture/.

2. Survey development and validation

The primary aim of the ESCU survey was to capture aspects of school and classroom culture among students and teachers in Danish lower secondary education. The survey was developed using a relatively broad concept of school culture. Maslowski's (2001) definition of school culture as "the basic assumptions, norms and values, and cultural artifacts that are shared by school members, which influence their functioning at school" (Maslowski 2001, p. 8-9) guided the selection and operationalization of theoretical concepts. Furthermore, the survey particularly focused on two aspects of school culture that are relevant for the generation of social and gender inequalities in education: The school's general orientation towards postsecondary education, which in the context of US high schools has been labelled as a school's organizational habitus (McDonough 1997), and the prevalence of gender stereotypes (Gorman 2005), e.g. beliefs about students' competencies and orientations based on their gender. To this end, the survey made use of both existing scales from previous research and specially developed scales. As far as possible, previously validated scales were employed; however, in particular the measurement of schools' general orientation towards postsecondary education required the development of new scales. This was both due to the sparsity of previous survey-based research on this topic and that the scales had to be appropriate for use in the context of the Danish education system. Tables 1 (teachers) and 2 (students) present an overview of the different scales, the original source and a Cronbach's alpha value as an indication of internal reliability, based on the responses of the full sample.

Table 1. Scales and themes in student questionnaire

Scale/theme	**Example item**	**Population**	**Source**	**Cronbach's alpha(6th grade/9th grade)**
Educational aspirations	What was your first choice of upper secondary education?	9th grade		N/A
Occupational aspirations	What kind of job do you expect to have when you are about 30 years old?	6th and 9th grade	OECD 2016	N/A

Attitudes to upper secondary education	Vocational training is mostly for students who cannot get into general upper secondary education	9th grade		0.71
Use of school initiatives to help choose education track	Guidance from a student counselor	9th grade		N/A
Teachers' aspirations	My teachers tell me what they think I should do after 9th grade	9th grade		0.54
Teacher support, math	My math teacher thinks I do well in school	6th and 9th grade		0.65/0.72
Teacher support, Danish	My Danish teacher thinks I do well in school	6th and 9th grade		0.64/0.72
School value	Making an effort in school is worth it because this will help me in the work I want to do later on.	6th and 9th grade	OECD 2016	0.81/0.83
Ambitions	I want top grades in all of my courses	6th and 9th grade	OECD 2016	0.67/0.78
Self-concept, math	I learn new things quickly in mathematics	6th and 9th grade	OECD 2013	0.90/0.93
Self-concept, Danish	I learn new things quickly in Danish	6th and 9th grade	OECD 2013	0.87/.90
Classroom attitudes, school	Many of the students in my class are tired of going to school	6th and 9th grade		0.51/0.62
Classroom attitudes, Danish	Most of my classmates make an effort in Danish classes	6th and 9th grade	OECD 2013	0.67/0.69
Classroom attitudes, math	Most of my classmates make an effort in mathematics classes	6th and 9th grade	OECD 2013	0.76/0.70
Gender stereotypes, math	The weakest students in mathematics are... (girls/boys)	6th and 9th grade	"Mathematics as a Gendered Domain" (Leder & Forgasz, 2002)	0.85/0.89

Gender stereotypes, Danish	The weakest students in Danish are... (girls/boys)	6th and 9th grade	"Mathematics as a Gendered Domain" (Leder & Forgasz, 2002)	0.87/0.92
Reading habits – frequency	How often do you read fiction	6th and 9th grade	OECD 2016	0.60/0.71
Reading habits – attitudes	Reading is one of my favorite hobbies	6th and 9th grade	OECD 2016	0.80/0.86
Cultural habits	How often do you go to a museum	6th and 9th grade	(Jæger & Breen, 2016)	0.59/0.59
Family habits	How often do you talk to your parents about political or social issues	6th and 9th grade	(Jæger & Breen, 2016)	0.46/0.60
Parental support	My parents support me when I am facing difficulties at school	6th and 9th grade	OECD 2016	0.83/0.85

The first step in developing the survey involved a cognitive pre-test (see Lenzner et al. 2016) involving one 6th grade class, one 9th grade class and three teachers. Based on this pre-test, response categories were simplified and some items were removed due to complex language. The second step was a pilot test of the survey involving one 6th grade and one 9th grade class. The pilot test did not indicate a need for further changes to the survey items.

Table 2. Scales and themes in teacher questionnaire

Scale/theme	**Example item**	**Source**	**Cronbach's alpha**
Active classroom participation	Students in this class take an active part in classroom discussions		0.81
Gendered participation, math	Boys are very active in mathematics lessons, at the expense of girls		0.71
Classroom independence	Students in this class are good at working independently		0.86

Teacher emphasis on preparation for further education	I take into account that my teaching helps prepare the students for the transition to upper secondary education		0.88
Stereotypes about achievement	How do you expect girls/boys/immigrant children to perform in the final examinations compared to the average student?	NEPS (Wenz et al., 2017)	N/A
Gendered stereotypes, math	The weakest students in mathematics are... girls/boys	"Mathematics as a Gendered Domain" (Leder & Forgasz, 2002)	0.68
Gendered stereotypes, Danish	The weakest students in Danish are... girls/boys	"Mathematics as a Gendered Domain" (Leder & Forgasz, 2002)	0.92
Teacher attitudes high school/vocational training	Only the most talented students should be admitted to upper secondary education		0.50
School initiatives to help choose education track	At our school, we offer… Guidance from a student counselor		N/A
Cultural habits	How often do you go to a museum?	(Jæger & Breen, 2016)	0.58
Background information	Gender/education/ age/experience		N/A

As well as the scales and items listed in tables 1 and 2, the survey also contains so-called factorial survey experiments or vignettes (Auspurg & Hinz, 2015). In these vignettes, the respondent is presented with a hypothetical case description of a student with particular characteristics. Based on this case, the respondent is asked to recommend options for further education for the (vignette) student. In the first vignette, the respondent is asked to recommend a specific type of upper secondary school; in the second vignette, respondents are asked to recommend different tracks (science/technical track, a social science track, a lan-

guage track) within general upper secondary education ("gymnasium"). In the case descriptions of vignette students, different characteristics are randomly varied. The first vignette has a 2x3x2 factorial design. Specifically, the design randomly varies the gender (male/female), the GPA (high/middle/low) and the hobby (typically male/typically female) of the student. The second vignette employs a 2x2 design, varying the gender (male/female) and the hobby (typically male/typically female) of the student. The purpose of the vignettes is to capture students' potential gender bias when recommending the described students particular school type or track. They were developed specifically for the ESCU survey and were included in both the cognitive pre-test and the pilot test. Respondents to the student and teacher surveys were presented with identical vignettes, aimed at capturing potential gender bias in both students' and teachers' track recommendations. See appendices for the vignette text and response categories.

3. Sampling process

Based on information from the Danish register of educational institutions, all Danish schools were divided into 12 strata based on three factors: (1) Socioeconomic reference, a publicly available statistic denoting the expected grade point average of a school given the socioeconomic composition of the student body over the last three years. (2) School-size, measured in number of students at the time of conducting the survey. (3) The urbanization of the local neighborhood, using information retrieved from the Danish register of educational institutions at the beginning of 2019 (see https://www.uvm.dk/institutioner-og-drift/institutionsregisteret).

Schools were divided into three groups of approximately equal size based on socioeconomic reference: low (bottom 33%), medium (middle 33%) and high (top 33%). Within each of these groups, the schools have been divided into small and large schools (split at the median student population for all Danish schools), giving a total of six different groups with a ratio reflecting the relationship between large/small schools within each socioeconomic stratum in Denmark. Each of these six groups has been further divided based on whether or not the school is situated in a larger city (Aarhus and Copenhagen) resulting in a total of 12 groups. See figure 1.

Figure 1. Overview of the 12 strata

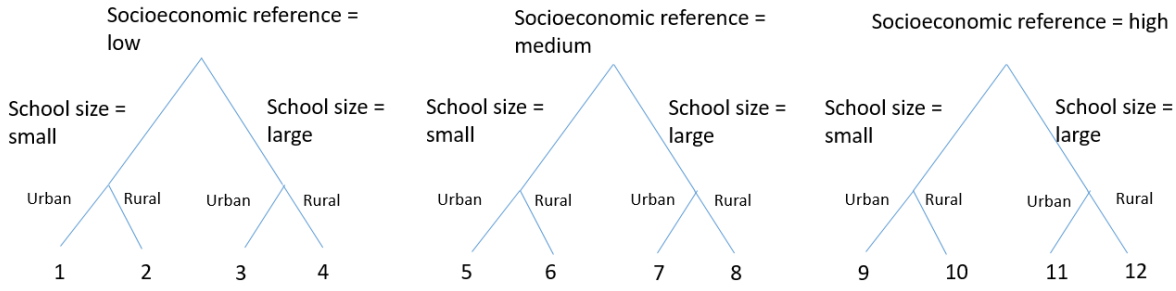

Table 3 shows the distribution of the population of schools across the 12 strata.

Table 3. Distribution of schools in the population

Strata	N schools	Percentage
1	71	6.60%
2	14	1.30%
3	231	21.49%
4	30	2.79%
5	75	6.98%
6	3	0.28%
7	249	23.16%
8	29	2.70%
9	89	8.28%
10	16	1.49%
11	204	18.98%
12	64	5.95%
Total	1075	100%

4. Recruitment & non-response

As a first step, 390 schools were randomly selected weighted after the distribution shown in table 3. During the recruitment process, it became necessary to draw 346 additional schools to ensure the participation of a sufficient number of schools. This resulted in a list of 736 schools. By contacting these schools, the goal was to recruit 50 schools with a distribution approximating that between the 12 strata as shown in table 3.

Before starting the recruitment process, 52 schools were excluded. These were religious schools, international schools and special needs schools.

The recruitment process led to 50 schools agreeing to participate. Afterwards, the recruited schools were asked to register the selected 6th and 9th grade classes and their mathematics and Danish teachers within the survey platform and grant access to distribution via unique student and teacher identifiers (uni-login).

Twelve schools failed to complete this registration process, meaning 38 schools completed the recruitment and registration process.

4. 1. School-level non-response

In the process of completing the questionnaires, five schools failed to comply to fill out the questionnaires, resulting in a final sample of 33 schools. Since these numbers indicate a high level of non-response at the school level, we explore to what extent our realized school sample deviates from the general (school) population characteristics.

The 33 schools were distributed across the strata as shown in table 4. While strata 1 is somewhat overrepresented, there is largely a failure in recruiting schools from the strata with low representation in the total population (strata 2, 4, 5, 6, 8). As such, the sample is mostly made up of the larger strata (3, 7, 11).

Table 4. Distribution of sample and population within stratas.

Strata	Sample	Number of schools in sample	Population
1	21.21%	7	6.60%
2	0%	0	1.30%
3	33.33%	11	21.49%
4	0%	0	2.79%
5	0%	0	6.98%
6	0%	0	0.28%
7	27.27%	9	23.16%
8	0%	0	2.70%
9	3.03%	1	8.28%
10	3.03%	1	1.49%
11	9.09%	3	18.98%
12	3.03%	1	5.95%
Total	100%	33	100%

Student- and teacher-level non-response

Table 5 displays the response rates among the 33 schools for students and teachers.

Table 5. Response rates

	6th grade	9th grade	Teachers
Total recruited	1364	1200	204
Total responses	1094	892	143
Response-rate	80.2%	74.3%	61.6%

As is evident from table 5, among the students and teachers from the 33 schools recruited and registered in the survey system, between 61.6% and 80.2% answered the questionnaires.

5. Linkage to the Danish administrative registers and comparisons to the full student population

In addition to the information collected through the questionnaires, the data can be enriched by using data from the Danish administrative registers and data collected by the Danish Ministry of Education (e.g. the results of Danish National Tests and student well-being surveys).

This is possible because the schools provided each student's unique identifier (uni-login) when they agreed to participate. This identifier enables linkage to the civil registration number (CPR-nummer), which is a unique personal registration number for each Danish citizen. To ensure the anonymity of respondents, this linkage is performed on the secure servers of Statistics Denmark using a pseudonymized version of the civil registration number. The link between uni-login and civil registration number is provided by the Danish Ministry of Education; however, due to small errors in their register, 2.49% of the sample could not be linked to their civil registration number.

Table 6 compares the realized survey sample with the general population of all students in Danish public schools (grades 6 and 9, school year 2018/2019) on selected indicators of students' social background and academic achievement. The indicator for parental education was constructed based on the education registers (UDDF) and the indicator for parental income based on the income register (IND), while we use results from the Danish National Tests ("DNT") in Danish and math, respectively, as proxies for students' level of academic achievement (see Rohde Skov & Hønge Flarup, 2020).

Table 6. Comparison of sample vs. population on selected variables.

Variable	Sample mean	Sample SD	Population mean	Population SD	Difference
Parental annual income (in DKK)	287,912	132,723	319,009	352,616	31,097***
Highest parental education (in years)	13.45	2.42	13.84	2.49	0.39***
National tests Danish, 8th grade	0.21	1.19	0.23	1.27	0.02
National tests math, 8th grade	0.15	1.48	0.10	1.51	0.05
National tests Danish, 6th grade	-0.18	1.01	-0.03	1.04	0.15***
National tests math, 6th grade	0.75	1.04	0.90	1.12	0.15***
School size (number of students)	362	159.81	368	258.91	6

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Differences tested through t-tests. Based on information from Danish register data and test scores from the Danish National Tests.

As evident from table 6, the students in the survey sample have parents with slightly lower levels of income and education than the overall population. There are no statistically significant differences between the 9th grade sample and the entire student population in terms of academic achievement as measured by the national tests – but there is a slight difference in terms of grade point average. For the 6th grade students, the achievement measures show small but statistically significant differences in favor of the overall population. The average school size (number of students) of the population is not statistically different from that of the sample.

These comparisons indicate that the realized sample is not perfectly representative of the entire population of Danish public school students in grade 6 and grade 9 in spring 2019.

However, the differences between the survey sample and the population sample are relatively small, both with respect to parental background measures and measures of students' academic achievement. Looking to the standard deviations for parental income, it is clear that there is a lot more variation in the population than the sample. This is due to outliers with very high incomes in the population, which also drive up the mean income of the population. Comparing the median income of the sample (273,746 DKK) and population (288,964 DKK) reveals a considerably smaller difference, compared to the differences in means, of 15,218 DKK.

6. References

Auspurg, K., & Hinz, T. (2015). *Factorial Survey Experiments* . Sage: Los Angeles.

Gorman, E. H. (2005). Gender Stereotypes, Same-Gender Preferences, and Organizational Variation in the Hiring of Women: Evidence from Law Firms. *American Sociological Review*, *70*(4), 702–728. https://doi.org/10.1177/000312240507000408

Jæger MM and Breen R (2016) A dynamic model of cultural reproduction. *American Journal of Sociology* 121(4): 1079–1115. DOI: 10.1086/684012.

Leder, G., & Forgasz, H. (2002). Two New Instruments to Probe Attitudes About Gender and Mathematics. *Office of Educational Research and Improvement*, 28. https://doi.org/ED463312

Lenzner, T. Neuert, C. & Otto, W. (2016). Cognitive Pretesting. GESIS Survey Guidelines. Mannheim, Germany: GESIS – Leibniz Institute for the Social Sciences. https://doi.org/10.15465/gesis-sg_en_010

Maslowski, R. (2001). *School Culture and School Performance*. Twente University Press: Twente. http://doc.utwente.nl/36122/1/t0000012.pdf%5Cnhttp://eric.ed.gov/?id=EJ276371

McDonough, P. M. (1997). *How Social Class and Schools Structure Opportunity*. State University of New York Press.

OECD (2013) *PISA 2012 Technical Report*. *Pisa*. Paris.

OECD (2016) *PISA 2015 Technical Report*. *Pisa*. Paris.

Rohde Skov, P., & Hønge Flarup, L. (2020). *De nationale tests samvariation med karakterer. Delrapport 2: Evalueringen af de nationale test.* VIVE - Det Nationale Forsknings- og Analysecenter for Velfærd.

Wenz, S. E., Olczyk, M., & Lorenz, G. (2017). Measuring Teachers' Stereotypes in the NEPS. *Ssrn*, *3*. https://doi.org/10.2139/ssrn.2999297

Appendix 1 - ESCU Student questionnaire – English version

Aspirations

Item	Answer-scale	Comment
1) Are you taking 10th grade before finishing lower secondary school?	Yes/No	Only for 9th grade
1A. [If 1. = yes] What do you think you will do after finishing 10th grade?	1. Higher General Examination (STX), 2. Higher Preparatory Examination (HF), 3. Higher Commercial Examination (HHX), 4. Higher Technical Examination (HTX), 5. Food, agriculture and experiences (Vocational upper secondary education), 6. office, trade and business (Vocational upper secondary education) , 7. Care, health and pedagogy (Vocational upper secondary education), 8. Technology, construction and transportation (Vocational upper secondary education), 9. Vocational upper secondary education combined with higher examination, 10. Vocational upper secondary education 11. I'm taking a gap year, 12. I'm going to work (earn money) 13. I'm studying abroad, 14. Other	Only for 9th grade
2) You recently filled out your [education plan]. What was your first choice of upper secondary education?	[Same a 1A]	Only for 9th grade The 'education plan' is a form the students have to fill out, outlining their

		plans for further education.
3) What do you think you will do after finishing 9th grade?	[Same a 1A]	Only for 6th grade
4) Which of the following do you expect to complete?	1. Less than high school 2. High school (high school diploma or GED) 3. Vocational or technical certificate (such as cosmetology or auto mechanics) 4. Associate's degree (2-year degree from a community college) 5. Bachelor's degree (4-year college degree) 6. Master's degree or doctoral or professional degree such as medicine or law	Only for 9th grade
5) What kind of job do you expect to have when you are about 30 years old?	[Open question]	
6) 1) To what extend do you agree on the following statements concerning upper secondary education? a) Vocational training is just as good as a general upper secondary education b) If you do well in school, you should go on to general upper secondary education c) Vocational training is mostly for students who cannot get into general upper secondary education Choosing general upper secondary education, is the best choice for your future	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	Only for 9th grade
7) 1) There are a number of activities and services, that can help students decide what kind of upper secondary education to choose. In which of the following have you participated? a) Introductory courses to upper secondary education b) Visited upper secondary education institutions	1. Participated in once 2. Participated in multiple times 3. Did not participate in Is not available to me	Only for 9th grade

c) Open house at upper secondary education institutions d) Visited workplaces e) Internship f) Classes in "Edcuation and Job" g) Guidance from a student counselor h) UG.dk i) Activities related to the 'open school', e.g. cooperation with a workplace or upper secondary education institutions Other		
7.J [if 7.j= yes] What other activity helped you decide what kind of upper secondary education to choose?	[Open question]	Only for 9th grade
8) 1) Think of your two closest classmates – what will they do after finishing 9th grade? a) Classmate 1 b) Classmate 2	[Same as 1A]	Only for 9th grade

Role of teachers

9) How much do you agree with the following statements concerning your teachers? a) My teachers have an opinion on what I should do after 9th grade b) My teachers tell me what they think I should do after 9th grade c) My teachers are confident that I will succeed with my education beyond 9th grade	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	Only for 9th grade
10) How much do you agree with the following statements about your mathematics/danish teacher a) My mathematics/danish teacher underestimates my abilities – I am better than they think b) My mathematics/danish teacher thinks I do well in school c) My mathematics/danish teacher is interested in how I am doing in school d) My mathematics/danish teacher help me to do my best	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	Asked separately for each subject

Attitudes towards school

11) How much do you agree with the following statements about school? a) Making an effort in school is worth it because this will help me in the work I want to do later on. b) What I learn in school is important for me because I need this for what I want to do later on. c) Studying is worthwhile for me because what I learn will improve my career prospects. d) Many things I learn in school will help me to get a job	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	
12) How much do you agree with the following statements about your attitude towards school? a) I want top grades in most or all of my courses. b) I want to be able to select from among the best opportunities available when I graduate. c) I want to be the best, whatever I do. d) I see myself as an ambitious person. e) I want to be one of the best students in my class.	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	
13) How much do you agree with the following statements about your attitude towards mathematics/danish? a) I am just not good at mathematics/danish b) I get good grades in mathematics/danish c) I learn new things quickly in mathematics/danish d) I have always believed that mathematics/danish is one of my best subjects e) I understand even the most difficult topics in mathematics/danish	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	Asked separately for each subject

Class and classmates

13) How much do you agree with the following statements about your class? a) Liking school is a good thing in my class b) Many of the students in my class are tired of going to school c) Participating during class and doing well in school is a good thing in my class	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	
14) How much do you agree with the following statements about your classmates? a) Most of my classmates do well in danish/mathematics b) Most of my classmates make an effort in danish/mathematics classes c) My classmates enjoy having tests in danish/mathematics	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	Asked separately for each subject
15) How much do you agree with the following statements about your mathematics/danish? a) Mathematics/danish is easiest for... b) Students with the best prerequisites for mathematics/danish are…* c) The weakest students in mathematics/danish are... d) Interest in mathematics/danish is biggest among... e) Students making the biggest effort in mathematics/danish are… f) Students who understand mathematics/danish the best are… g) Students who care the most about mathematics/danish are...	11-point scale. 0 (primarily girls) 5 (boys and girls equally) 10 (primarily boys)	Questions posed separately for each subject. * This item is only posed for 9th grade

Reading habits

16) How often do you read… a) Fiction? b) Non-fiction? c) Comic-books? d) Content on webpages? e) Blogs? f) Magazines? g) Newspapers? h) Other?	1. Every day 2. Multiple times a week 3. Multiple times a month 4. Once a month 5. A few times a year 6. Never or almost never	
17) How much do you agree with the following statements concerning your reading habits? a) I read only if I have to b) Reading is one of my favourite hobbies c) I like talking about books with my parents d) I find it hard to finish books e) I feel happy if I receive a book as a present f) For me, reading is a waste of time g) I enjoy going to a bookstore or a library h) I read only to get information that I need i) I cannot sit still and read for more than a few minutes	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	

Cultural capital and background questions

18) How often do you do the following? a) Go to a museum b) Go to the theater or a concert c) Go to the cinema d) Listen to classical music e) Go to the library or school library (without the rest of the class)	1. Once a week or more 2. Once a month 3. More than twice a year 4. Once to twice a year 5. Never	
19) How often do you do the following with your parents? a) Have dinner with your parents b) Talk to your parents about political or social issues c) Talk to your parents about how you are doing in school	1. Once a week or more 2. Once a month 3. More than twice a year 4. Once to twice a year 5. Never	
20) Thinking of this school year. How much do you agree with the following statements? a) My parents are interested in my school activities. b) My parents support my educational efforts and achievements. c) My parents support me when I am facing difficulties at school. d) My parents encourage me to be confident.	1. Completely disagree 2. Slightly disagree 3. Neither agree or disagree 4. Slightly agree 5. Completely agree	
21) What language do you and your parents speak at home?	1. Danish 2. Other	

Vignettes

22) See the following description of a 9th grade student. ***[Caroline/Frederik]*** *is thriving in school and has many friends in her(his) class and in her(his) grade. Academically Caroline is doing fine and she has a GPA of* ***[5,4/6,8/9,7]*****. In her leisure time she(he) likes to hang out with her friends, play handball and* ***[play computer games/read books]****. Caroline does not have a favorite subject in school. She comes from a well-functioning family and her parents support her choice no matter which type of upper secondary education she will choose.*	Which educational path would you recommend him/her after 9th grade: 1. Gymnasium 2. Vocational Training 3. 10th grade* 4. other •	*Optional extra year – particularly attractive for lower-performing students **on a scale from 2,4,7,10,12 (12=highest grade, 2=lowest passing grade)
23) See the following description of a 9th grade student. ***[Mads/Ida]*** *attends 9th grade and likes to play handball and* ***[computer games/read books]*** *in her(his) leisure times. She(he) is doing well at school and has a GPA of 9.1 from compulsory school. She(he) likes to go to school and has many friends. She(he) chose to attend Gymnasium after 9th grade. Ida is in doubt which gymnasium track in school she(he) should choose since she(he) has not a particular favorite subject in school and actually likes most subjects equally.*	Which track at gymnasium would you recommend? 1. A Science/Technical track 2. A Social Science track 3. A Language Track	

Appendix 2 - ESCU Teacher questionnaire – English version

Background information

Items	Answer-scale	Reference/comment
1) Which subjects do you teach?	1. Danish 2. Mathematics 3. Danish and mathematics	
2) What is your gender?	1. Male 2. Female	
1) How old are you?	[number]	
2) How many years have you worked as a teacher?	[number]	
3) What is the highest level of formal education you completed?	1. 9th grade 2. Upper secondary education 3. Vocational upper secondary education 4. Teacher education 5. Bachelor's degree 6. Master's degree or higher	
4) Are you a trained teacher?	1. Yes, I'm a trained teacher 2. Yes, I'm a trained teacher with award of credit for prior learning 3. I'm not a trained teacher	
5) How often do you do the following? a) Go to a museum b) Go to the theater or a concert c) Go to the cinema d) Listen to classical music e) Go to the library	1. Once a week or more 2. Once a month 3. More than twice a year 4. Once to twice a year 5. Never	

On classroom culture

6) How much do you agree with the following statements concerning the class you teach? a) Students in this class participate actively in classroom discussions b) When we do group-work the students in this class makes an effort c) The students in this class often ask questions when I teach	1. Completely agree 2. Slightly agree 3. Neither agree or disagree 4. Slightly disagree 5. Completely disagree	
7) How much do you agree with the following statements concerning mathematics lessons? a) During mathematics lessons girls keep a low profile more than in other subjects b) It can be hard for girls to be heard during math lessons c) Boys are more active in mathematics lessons, at the expense of girls	1. Completely agree 2. Slightly agree 3. Neither agree or disagree 4. Slightly disagree 5. Completely disagree	

Teaching

8) How much do you agree with the following statements about your teaching? a) I make sure that my teaching help prepare the students for the transition to upper secondary education b) When I teach I point out when the material is relevant for the transition to upper secondary education c) It is an important part of my job to prepare and motivate the students for the transition to upper secondary education	1. Completely agree 2. Slightly agree 3. Neither agree or disagree 4. Slightly disagree 5. Completely disagree	

Attitudes towards gender and education

9) Final exams for the 9th graders are approaching. How do you think 9th grade students belonging to different groups will do in Danish/math compared to the national average? a) Girls in math b) Boys in math c) Students from immigrant families in math d) Girls in Danish e) Boys in Danish f) Students from immigrant families in Danish	11-point scale. 0 (far below average) 5 (like average) 10 (far above average)	
10) How much do you agree with the following statements about your mathematics/danish? a) Mathematics/danish is easiest for... b) Students with the best prerequisites for mathematics/danish are… c) The weakest students in mathematics/danish are... d) Interest in mathematics/danish is biggest among... e) Students making the biggest effort in mathematics/danish are… f) Students who understand mathematics/danish the best are… g) Students who care the most about mathematics/danish are...	11-point scale. 0 (primarily girls) 5 (boys and girls equally) 10 (primarily boys)	Questions posed separately for each subject.
11) As you know students have been choosing general upper secondary education to a greater extent the recent years. We are interested in your opinion on this. How much do you agree on the following statements concerning general upper secondary education vs. vocational training? a) Too many students choose general upper secondary education	1. Completely agree 2. Slightly agree 3. Neither agree or disagree 4. Slightly disagree 5. Completely disagree	

b) The academic standard is lower at general upper secondary education today than it was in the 90s/80s c) The "prestige" of vocational training is too low compared to the general upper secondary education d) The government should limit the access to general upper secondary education, so that only the most talented students are admitted e) It is best for a country like Denmark that as many students as possible complete general upper secondary education and go on to higher education		
12) There are a number of activities and services, that can help students decide what kind of upper secondary education to choose. Which of the following is available at the school you teach? a) Introductory courses to upper secondary education b) Visited upper secondary education institutions c) Open house at upper secondary education institutions d) Visited workplaces e) Internship f) Classes in "Edcuation and Job" g) Guidance from a student counselor h) UG.dk i) Activities related to the 'open school', e.g. cooperation with a workplace or upper secondary education institutions j) Other	1. We have that 2. We don't have that 3. Don't know	

Vignettes

13) See the following description of a 9th grade student: ***[Caroline/Frederik]*** *is thriving in school and has many friends in her(his) class and in her(his) grade. Academically Caroline is doing fine and she has a GPA of* ***[5,4/6,8/9,7]******. In her leisure time she(he) likes to hang out with her friends, play handball and* ***[play computer games/read books]****. Caroline does not have a favorite subject in school. She comes from a well-functioning family and her parents support her choice no matter which type of upper secondary education she will choose.*	Which educational path would you recommend him/her after 9th grade: 1. Gymnasium 2. Vocational Training 3. 10th grade* 4. other	*Optional extra year – particularly attractive for lower-performing students **on a scale from 2,4,7,10,12 (12=highest grade, 2=lowest passing grade)
14) See the following description of a 9th grade student. ***[Mads/Ida]*** *attends 9th grade and likes to play handball and* ***[computer games/read books]*** *in her(his) leisure times. She(he) is doing well at school and has a GPA of 9.1 from compulsory school. She(he) likes to go to school and has many friends. She(he) chose to attend Gymnasium after 9th grade. Ida is in doubt which gymnasium track in school she(he) should choose since she(he) has not a particular favorite subject in school and actually likes most subjects equally.*	Which track at gymnasium would you recommend? 1. A Science/Technical track 2. A Social Science track 3. A Language Track	