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Similar but not the same: Comparing Norwegian and Swedish teachers' influence on textbook selection and involvement in text discussions

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Abstract

The present study compares Norwegian and Swedish teachers' influence on textbook selection and the impact of this on teachers' involvement in textbook discussions (discussions with colleagues and the principal). For this purpose we conducted a survey with Norwegian (n = 236) and Swedish (n = 340) teachers in grade 0 to 9 (which comprises pupils at approximately ages 6 to 15). The core argument is that even though Norway and Sweden have very similar welfare and education systems, they nevertheless differ in teachers' influence on textbook selection and involvement in textbook discussions. Factor analysis was used to develop two new measures of teaching: influence on textbook selection and involvement in textbook discussions. First, the study shows there is a mean difference between the countries in both influence on textbook selection and involvement in textbook discussions indices. Second, OLS regression was used to demonstrate a curvilinear effect of age on influence on textbook selection in both countries. A curvilinear relationship was also found between teaching years and the influence on textbook selection in both countries

Keywords: Comparative study, Textbook selection, Textbook discussions, Teachers' attitudes, Scandinavia.

Resumo

O presente estudo compara a influência dos professores noruegueses e suecos sobre a seleção de livros didáticos e o impacto desse fator no envolvimento dos professores nas discussões sobre livros didáticos (discussões com colegas e o diretor). Para isto, realizamos uma pesquisa com professores noruegueses (n = 236) e suecos (n = 340), no nível K-9 do ensino. O argumento central é que, embora a Noruega e a Suécia tenham sistemas sociais e educacionais muito semelhantes, eles diferem quanto à influência dos professores sobre a seleção de livros didáticos e quanto ao seu envolvimento nas discussões sobre livros didáticos. A análise de fatores foi utilizada para desenvolver duas novas medidas de ensino: influência na seleção de livros didáticos e envolvimento nas discussões sobre livros didáticos. Primeiro, o estudo mostra que há uma diferença média entre os países, tanto nos índices de influência na seleção de livros didáticos quanto nos de envolvimento em discussão sobre livros didáticos. Em segundo lugar, a regressão pelo método dos *Mínimos Quadrados Ordinários* (MQO) foi utilizada para demonstrar um efeito curvilíneo da idade no que se refere à influência na seleção de livros didáticos em ambos os países. Um relacionamento curvilíneo também foi encontrado quanto à influência dos anos de ensino na seleção de livros didáticos em ambos os países.

Palavras-chave: Estudo comparativo, Seleção de livros didáticos, Discussões sobre livros didáticos, Atitudes dos professores; Escandinávia.

Resumen

El presente estudio compara la influencia de profesores noruegos y suecos en la selección de libros didácticos y el impacto de este factor en la participación de los docentes en los debates sobre los libros didácticos (debates con colegas y el Director). Para ello, realizamos una investigación de maestros noruegos (n = 236) y suecos (n = 340), nivel K-9 de enseñanza. El argumento central es que mientras Noruega y Suecia tienen sistemas sociales y educativos muy similares, difieren en la influencia de los maestros en la selección de los libros didácticos y su participación en las discusiones sobre los libros didácticos. El análisis de factores fue utilizado para desarrollar dos nuevas medidas de enseñanza: influencia en la selección de libros didácticos y la participación en las discusiones sobre los libros didácticos. En primer lugar, el estudio muestra que existe una diferencia relativa entre los países, en los índices de influencia en la selección de libros didácticos así como en la participación en la discusión de los libros didácticos. En segundo lugar, la regresión a través del método *mínimos cuadrados ordinarios* (MQO) fue utilizada para demostrar un efecto curvilíneo de la edad en términos de influencia en la selección de libros didácticos en ambos países. También se encontró una relación curvilínea con respecto a la influencia de los años de enseñanza en la selección de libros didácticos en ambos países.

Palabras clave: Estudio comparativo, Selección de libros didácticos, Debates sobre los libros didácticos, Las actitudes de los docentes, Escandinavia.

1. Introduction

Living in a knowledge-intense society, we are exposed to more information than ever before. Consequently, there are great demands placed on our citizens' reading literacy and the evaluation of different texts at school, at work and in our leisure time. Most occupations - particularly professional occupations e.g. teachers, lawyers, engineers - increasingly demand that employees are able to read manuals, compile reports, and so on (Reichenberg, 2013).

In this study, we are particularly interested in the teaching profession as a group of professionals that on a daily basis use their expert judgement when selecting texts for their students, i.e. tomorrow's citizens. The student population is more diverse than ever (Hargreaves, 2000), and consequently, the demands on teachers to adopt textbooks and other curricular materials have increased, given that they can no longer find a textbook and other curricular materials that fit all students' needs in the classroom (Lundberg & Reichenberg, 2009). Moreover, teachers' influence on textbook selection has increased in many countries after the deregulation of textbooks (Wilkins, 2011).

Although there are examples of studies of teachers' using their expert judgement when selecting texts for their students, these studies suffer from two major problems: they are mostly case studies and they lack a comparative dimension (Aamotsbakken, Askeland, Maagerø, Skjelbred, & Torvatn, 2005; Aamotsbakken & Skjelbred, 2010; Vareberg & Askeland, 2013; Justvik, 2012; Reichenberg, 2014). Making generalizations based on findings in one country may lead to false inferences because teaching professions differ across countries with regards to teachers' work- and life experiences. To test whether such an assumption is true, comparative research is required.

One way of describing teachers' expert judgement over selection of textbooks and other curricular materials would be to compare countries with similar welfare states and education policies –such as Norway and Sweden- but with teachers that differs in life- and work experiences. Such studies have been lacking until now. Consequently, the aim of this study is to compare Swedish and Norwegian teachers' *influence on textbook selection*, and the impact of this on the *involvement in textbook discussions*. *Textbook discussions* are defined as when teachers discuss textbooks and other curricular materials with their colleagues and their principal.

To address our aim we pose five research questions:

1. To what extent do Norway and Sweden differ with regard to the average (a) involvement in textbook discussions and (b) influence on textbook selection?

This question is comparative and serves to demonstrate whether mean differences are significantly greater than zero. We will answer the question by comparing means using a t-test.

2. What is the effect of (a) age, (b) experience, (c) sex, and (d) special education teaching on teachers' influence on textbook selection across Norway and Sweden?
3. What is the effect of teachers' (a) age, (b) experience, (c) sex, and (e) influence on textbook selection on *involvement in textbook discussions* across Norway and Sweden?

Research questions two and three are comparative, but focus on identifying the relevant independent variables that can predict these differences. In the second question we focus on teachers' influence on textbook selection and in the third question we focus on involvement in textbook discussions. We answer these questions using country-by-country OLS regression analysis.

4. What is the effect of (a) age, (b) experience, (c) sex, and (d) special education teaching on teachers' influence on textbook selection for the combined samples of Norway and Sweden?
5. What is the effect of teachers' (a) age, (b) experience, (c) sex, (e) influence on textbook selection for the combined samples of Norway and Sweden?

Research questions four and five are not comparative. Rather, we want to identify the independent variables that are relevant predictors if we combine the two samples. In the fourth question we focus on teachers' influence on textbook selection and in the fifth question we focus on involvement in textbook discussions. We will answer these two questions using OLS regression for the combined samples of both countries.

Our research questions are framed within a developmental perspective where we give theoretical primacy to teachers' life - and work experiences and their impact on teachers' capabilities (Hargreaves, 2005).

The remainder of the paper is structured as follows: First, we provide a contextual description of the educational context in Norway and Sweden, since we want to establish that the countries fit into a *most-similar design*. Second, we discuss the state of research and theories on teachers' influence on textbook selection and involvement in text discussions in schools. Third, we discuss the data and measurements used. Fourth, we present the results of the study, and finally we provide a discussion and conclusions.

1.1. Norway and Sweden

We will compare Norway and Sweden because they are most-similar cases. Both countries have a social democratic welfare state, despite various liberal policy changes from the 1990s onwards, a tradition based on strong citizen support for social security policies (Svallfors, 2004). A fundamental idea is that all citizens are eligible for social

benefits, and this is also notable in terms of education policies, although in recent years both countries have turned such policies towards liberal reforms, such as the deregulation of schools (Lundahl, 2002; Werler, Claesson, & Strandler, 2015; Volckman & Werler, 2015; Aasen, Møller, Rye, Ottesen, Prøitz, & Hertzberg, 2012). As a further step towards the deregulation of the education system, textbooks and curricular materials were deregulated in both countries. What makes the Swedish and Norwegian cases particularly interesting is that teachers in both countries have gained a considerable amount of influence on selection of textbooks and other curricular materials. This has resulted in an increasing demand on teachers' capacity when selecting textbooks and curricular materials (Johnson Harrie, 2009; Vareberg & Askeland, 2013). However, Norwegian and Swedish teachers have little to no formal teacher training in how to select textbooks and other curricular materials (Juuhl, Hontvedt, & Skjelbred, 2010; Reichenberg, 2014).

If teachers' influence on the selection of textbooks and curricular materials is not a factor in their formal education, we can clearly see that other factors, such as life experience gained over their life course (age), teaching experience (work age), school policies, or recommendations from fellow teachers, are potential independent variables when teachers select textbooks and other curricular materials (Juuhl, Hontvedt, & Skjelbred, 2010; Reichenberg, 2014).

1.2. The fall of state regulation and the rise of teachers' autonomy

Before 2000, all Norwegian and Swedish textbooks had to be approved. The task was performed by an approval committee with the help of specially appointed reviewers (Johnson Harrie, 2009). However, due to major changes in education policies, the state approval was deregulated in both countries. This meant responsibility for selecting materials, planning the teaching, and selecting content was delegated to the teaching profession and local schools.¹

The deregulation was not a specific Nordic phenomena but part of the neoliberal policy shift that occurred during the 1990s and later (Lundahl, 2002). Several other nations also deregulated, including Australia, Denmark, England, Estonia, Finland, Ireland, Italy, and the Netherlands (Wilkins, 2011). By giving teachers increased influence on the selection of textbooks and other curriculum materials, policymakers thought that teachers were able to make use of and share their pedagogical content area knowledge and pedagogical methods concerning textbooks and other curricular materials. Such knowledge sharing would ultimately lead to more creative instruction and an instructional policy that was better suited to handling the increasing diversity of students (Aasen, Møller, Rye, Ottesen, Prøitz, & Hertzberg, 2012; Werler, Claesson,

¹ The decision was just one part of the decentralisation of the education system, which delegated economic responsibility to the municipalities and instructional responsibility to the teaching profession from the government (Lindblad, Lundahl, Lindgren, & Zackari, 2002).

& Strandler, 2015). In the next section, we will discuss the current state of research on teachers' judgments about textbooks and curricular materials, and determine the extent to which previous research has dealt with these variables.

2. Textbook selection and involvement in textbook discussions

A considerable body of research focuses on textbooks and curricular materials. However, these studies have largely investigated textbooks in one country only (Justvik, 2012; Bueie, 2002; Juuhl, Hontvedt, & Skjelbred, 2010; Korbits, 2015). Moreover, these studies have mostly dealt with the extent to which textbooks and curricular materials are standardized with regard to the curriculum (Rønning, 2008; Hodgson, 2010; Rogne, 2009; Juuhl, Hontvedt, & Skjelbred, 2010; Horsley & Sikorova, 2014), and whether textbooks reflect diversity in terms of content (Aamotsbakken, 2009; Ammert, 2010). However, there is a scarcity of research on teachers' influence on textbook selection. We find this somewhat surprising, since textbooks have influence on how and what teachers instruct tomorrow's citizens. We suggest that even though Norway and Sweden share several common features with regard to welfare states and education systems, we still expect differences between the countries because of differences in the life- and work experiences of the teaching profession, such as influence on textbook selection and involvement in textbook discussions. Thus, our first hypothesis is:

Hypothesis 1: *Norway and Sweden differ with regard to teachers' influence on textbook selection and involvement in textbook discussions.*

In the next section, we will further discuss Swedish and Norwegian studies that have investigated teachers' textbook selection and involvement in textbook discussions.

2.1. The effect of teacher experience on textbook selection and textbook discussions

In previous research, involvement in textbook discussions is typically measured by focusing solely on collegial discussions, as in Bueie (2002), Justvik (2012), and Reichenberg (2014). In Bueie's study, 70% of the teachers said that they discussed textbook selection with their colleagues (Bueie, 2002). Reichenberg (2014) found that the more intensive textbook discussions the teachers had with their colleagues, the more prone they were to discuss and recommend textbooks to select for instruction. By discussing textbooks, teachers are able to establish a mutual knowledge about which are suitable not only for good readers but also for students with reading difficulties. Consequently, teachers can establish their own set of textbook criteria as a profession in terms of the standards and qualities of textbooks. These discussions can also help less-experienced teachers (Grossman & Thomson, 2008; Peacock & Gates, 2000).

Teacher experience is an often-cited predictor in American educational research; the more experienced the teacher, the greater their professional knowledge of textbooks (Hargreaves, 2000; Darling-Hammond, 2000; Darling-Hammond & Youngs, 2002). Inspired by recent findings, we propose our second hypothesis:

Hypothesis 2: *Teachers' experience has a curvilinear relationship to their influence on textbook selection .*

Our hypothesis connects the research on the decline of state regulation of teachers' autonomy to textbook research. Therefore, we are confident in proposing that the contextual effect of the deregulation of textbook selection implies that teacher experience may produce a decreasing slope, rather than increasing their influence on textbook selection. Teachers in the Nordic countries were promised increased influence on textbook selection. When they were confronted with unfulfilled promises regarding influence - due to poor economy - more experienced teachers felt frustrated (Holmlund et al., 2014).

2.2. The effects of teachers' development during their life phases and school career and their influence on textbook selection.

Previous research suggests that teaching careers have a U-shape; meaning that teachers' efficacy increases in the first years of their teaching career and a drop in the final years (Caspi & Roberts, 2001; Hargreaves, 2005; Maskit, 2011). The first years are characterized by teachers seeking new methods, textbooks and curricular materials, and strategies; they have a desire to face professional challenges, a constant process of self-study, a deepening of both intellectual and practical knowledge, and a strong professional consciousness of a need for change. Thereafter, there is a stage of stability; the teachers have reached a plateau, they do what is expected of them, they find little pleasure in development, and are seldom motivated to participate in professional programs. There is then a further drop in the form of career frustration, a stage when many teachers begin to wonder why they are still teaching. At this point, there is a decrease in the willingness to initiate processes of change at work (Caspi & Roberts, 2001; Hargreaves, 2005; Maskit, 2011). Inspired by ethnographic evidence, our third hypothesis becomes:

Hypothesis 3: *Teachers' age has a curvilinear relationship to their influence on textbook selection.*

We base our hypothesis on the fact that with age, teachers become less willing to take part in processes of implementation and experimenting with new teaching methods (Caspi & Roberts, 2001; Hargreaves, 2005; Maskit, 2011). At the beginning of their career, these teachers were enthusiastic when dealing with educational change, while age brings somewhat solidified views about knowledge, learning, and children. Their energy is beginning to wane and they have built up other obligations and interests in their lives (Hargreaves, 2005).

Hypothesis 4: *Teachers' age has a curvilinear relationship to involvement in textbook discussions.*

We want to propose that being depleted of emotional energy may not only be a consequence of age, but also of teacher experience. Experienced teachers in Sweden and Norway are expected to feel emotionally depleted, but also frustrated. Thus, we combine the arguments into our fifth and sixth hypotheses:

Hypothesis 5: *Teachers' experience has a curvilinear relationship to involvement in textbook discussions.*

Hypothesis 6: *Teachers' influence on textbook selection increases involvement in textbook discussions.*

2.3. The effects of teachers' sex and teaching duties on the influence of textbook selection and involvement in textbook discussions

As mentioned in the introduction the student population is more diverse than ever (Hargreaves, 2005). A diversity of students tends to increase the time teachers spend on selecting textbooks and other curricular materials to the special needs of the individual student. Special educators face specific demands related to adapting textbooks to meet an individual student's special needs. Consequently, we predict that teachers differ in the attention they pay to textbooks and other curricular materials depending on whether or not teachers have been assigned to special needs work. Including the effect of being a qualified special educator seems inappropriate, as most teachers working with special needs students as part of their job description are seldom qualified special educators (Reichenberg, 2016). That is why we suggest that working with special education as part of the job description is a better measure. Thus, our seventh hypothesis becomes:

Hypothesis 7: *Teachers' special education teaching increases (a) their involvement in textbook discussions and (b) their influence on textbook selection.*

Finally, we suggest that the teachers' sex may impact both teachers' influence on textbook selection and involvement in textbook discussions. Consequently, teacher's sex should be an important part of the model for both. Our concern here is not whether or not these differences are socially constructed or teachers' traits; rather, our rationale for the prediction is that teacher's sex has consistently proved to be an important factor in teacher burnout, work satisfaction, and technology use. Thus, we predict that:

Hypothesis 8: *Teachers' sex is associated with (a) influence on textbook selection and (b) involvement in textbook discussions.*

3. Method

3.1. Study design

This survey study used questionnaires to gather quantitative information about, and to compare, Swedish and Norwegian teachers' influence on textbook selection, and the impact of this on the *involvement in textbook discussions*.

3.2. Participants and setting

Data was collected using the same sampling frame (teachers in grade 0 to 9 - which comprises pupils at approximately ages 6 to 15) and strategy in both countries to ensure comparability. The data collection was restricted to two areas: one in southeast Norway one in western Sweden. Both areas shared characteristics, such as having a high proportion of industrial workers and a multi-ethnic but socially segregated society, meaning that the student population was highly diverse.

The sample consisted of 236 Norwegian teachers in 10 schools and 340 Swedish teachers in 14 schools. The teachers were recruited by a respondent-driven sampling strategy (non-random), with student teachers asked to mediate contact with their respective schools. Letters containing information about the study were then sent to the principals of each school. Each of the researchers administered the questionnaires to the participants during the teachers' weekly training team meeting. Participation was voluntary, and all data was treated anonymously and confidentially.

We aimed at sampling all teachers at each school within our sampling frame. The sampling strategy ensured that we covered schools across the two areas. However, we cannot rule out the risk that the sampling parameters may be over- or underestimated with regard to the true population parameters.

3.3. Materials

The aim of this study was to compare Swedish and Norwegian teachers' influence on textbook selection, and the impact of this on the involvement in textbook discussions. In order to answer the research questions, we designed an item questionnaire in which the participants were asked to rate on a 7-point Likert scale ranging from *not at all true for me* (1) to *completely true for me* (7).

Variables	Norway		Sweden		Min	Max
	Mean/Proportion	Std. Dev.	Mean/Proportion	Std. Dev.		
1 Influence textbook selection	2.282	.795	1.566	.797	1	4
2 Delegated principal (r)	3.148	1.765	1.948	1.544	1	7
3 Delegated colleagues (r)	2.698	1.595	1.870	1.377	1	7
4 Discuss colleagues	5.555	1.308	5.75	1.385	1	7
5 Discuss principal	5.410	1.483	4.356	2.100	1	7
6 Important to talk to colleagues	6.119	1.093	6.009	1.391	1	7
7 Teaching years	16.627	10.731	16.230	11.8751	0	44
8 Teacher age	44.526	10.970	45.326	12.116	20	68
9 Teaching special education	.404	.492	.247	.431	0	1
10 Teacher sex	.292	.446	.447	.419	0	1

Table 1. Descriptive Statistics: Norway and Sweden
Note: r = reverse coded

Descriptive statistics – independent and dependent variables – are reported in Table 1. We report the data by country. In Tables 2a and 2b, we report the correlations for our continuous items, with all correlations grouped by country. In the next section, we will describe these variables further.

	1	2	3	4	5	6	7	8
1 Influence textbook selection	1.00							
2 Delegated principal (r)	0.40	1.00						
3 Delegated staff (r)	0.28	0.65	1.00					
4 Discuss colleagues	-0.11	-0.25	-0.22	1.00				
5 Discuss principal	-0.32	-0.18	-0.18	0.29	1.00			
6 Important to talk to colleagues	-0.19	-0.22	-0.21	0.40	0.58	1.00		
7 Teaching years	-0.17	-0.22	-0.17	0.07	-0.00	0.03	1.00	
8 Teacher age	-0.19	-0.19	-0.13	0.11	0.07	0.07	0.85	1.00

Table 2a. Correlation table: Norway
Note: r = reverse coded

	1	2	3	4	5	6	7	8
1 Influence textbook selection	1.00							
2 Delegated principal (r)	0.37	1.00						
3 Delegated staff (r)	0.32	0.57	1.000					
4 Discuss colleagues	-0.11	-0.03	-0.09	1.00				
5 Discuss principal	-0.12	0.15	0.07	0.21	1.00			
6 Important to talk to colleagues	-0.25	-0.02	-0.12	0.42	0.39	1.00		
7 Teaching Years	-0.31	-0.24	-0.24	0.11	0.05	0.16	1.00	
8 Teacher age	-0.26	-0.22	-0.20	0.06	-0.01	0.05	0.82	1.00

Table 2b. Correlation table: Sweden
Note: r = reverse coded

3.4. *Dependent variables*

Textbook influence. Influence on textbook selection and other curricular material is a measure of a teacher's control and autonomy because this control determines what elements of the curriculum are realized in teaching. Textbooks and other curricular material of the domain vary in content, goals, strategies, and values, hence teacher control is vital (Lundberg & Reichenberg, 2009). We used three questions and statements to measure teachers' influence on textbook selection and other curricular materials as an index. First, the degree to which teachers felt they could influence textbook selection; "How great is your influence when selecting textbooks and curricular materials?" (Item no. 1 in Table 1). Second, the degree to which teachers delegated textbook decisions to the principal (reverse coded); "I let the principal decide what textbooks are to be used" (Item no. 2 in Table 1). Third, the degree to which teachers delegated textbook decisions to someone else (reverse coded); "I prefer that another staff member decides what textbooks and curricular materials are to be used" (Item no. 3 in Table 1).

Textbook discussions. We suggest a measure for an involvement in textbook discussion index using three statements. First, the extent to which teachers can discuss textbooks and other curricular materials with colleagues; "I feel that I can discuss textbooks and curricular materials with my colleagues" (Item no. 4 in Table 1). Second, the extent to which teachers can discuss textbook and curricular materials with the principal; "I feel that I can discuss textbooks and curricular materials with the principal" (Item no. 5 in Table 1). Third, the extent to which teachers felt that it is important to talk about textbook and curricular materials with colleagues; "I feel that it is important to talk with my colleagues about textbooks and curricular materials" (Item no. 6 in Table 1).

3.5. *Measurement validation*

We used factor analysis to validate our measurements (Pedhazur & Schmelkin, 2013), and report the orthogonal rotation in Table 3, along with the Cronbach's α . Absolute loadings below $<.3$ were omitted from the table. We used the maximum likelihood estimation procedure, and to validate our measurements further, we conducted a confirmatory factor analysis (data available on request) with a satisfactory fit.

	Textbook selection	Involvement in textbook discussions
1 Influence textbook selection	0.705	
2 Delegated principal (r)	0.907	
3 Delegated colleagues (r)	0.510	
4 Discuss with colleagues		0.449
5 Discuss with principal		0.498
6 Important to talk to colleagues		0.900
Cronbach's α	0.73	0.59

Table 3. Factor analysis using maximum likelihood estimation after varimax rotation
Note: blanks represent absolute loading $<.3$; r = reverse coded.

3.6. Independent variables

Teacher experience. We were interested in the conventional way of measuring teacher experience, namely the number of years as teachers, i.e. the experience accumulated over one's professional career (Item no. 7 in Table 1). Researchers have found there is a rise in pedagogical changes in the first years of the career, and a drop in the final years (Caspi & Roberts, 2001; Hargreaves, 2005; Maskit, 2011). Accordingly, teaching experience may overlap with teaching expertise. However, we do not claim to measure teaching expertise or the factors associated with it, including social recognition or nomination, professional or social group membership, and performance-based criteria (Palmer, Stough, Burdenski, & Gonzales, 2005; Alexander, 2004). This would have required a prerequisite to include items in our questionnaire designed to measure expertise and the associated factors.

Teacher age. The age of a teacher measures the wisdom gained over the life course as a whole, and more specifically, life experience (Item no. 8 in Table 1).

Teacher sex. We coded 1 when the teacher was a male, and 0 when female (Item no. 9 in Table 1).

Teaching special education. We coded 1 when the teacher had special education as part of the work specification at the school, and 0 if not (Item no. 10 in Table 1).

4. Results

To answer our first research question, we wanted to test for country differences with regard to indices of influence on textbook selection and of involvement in textbook discussions.

Figure 1 shows a boxplot depicting the interquartile differences between countries. Interquartile allows us to detect difference both between and within countries, i.e. difference between teachers with low, medium and high feelings of influence on textbook selection and involvement in textbook discussions. Teachers with low feelings of influence on textbook selection scored higher in Sweden than in Norway. Teachers with low involvement in textbook discussions scored higher in Norway than in Sweden. But teachers with high involvement in textbook discussions scored "roughly" the same in both countries. However, no statistical test we are aware of would provide us with a test of differences in quantiles. Therefore we proceed with testing the differences in means and not quantiles or medians.

We conducted two t-tests to determine whether these differences were significantly different from zero under the assumption of approximately equal variance. As the t-statistic assumes asymptotic standard errors, we bootstrapped it using 1000. We

interpret the test following Cohen's rule of thumb: 0.2 to 0.3 as "small magnitude," 0.5 as "medium magnitude," and 0.8 as "large magnitude."

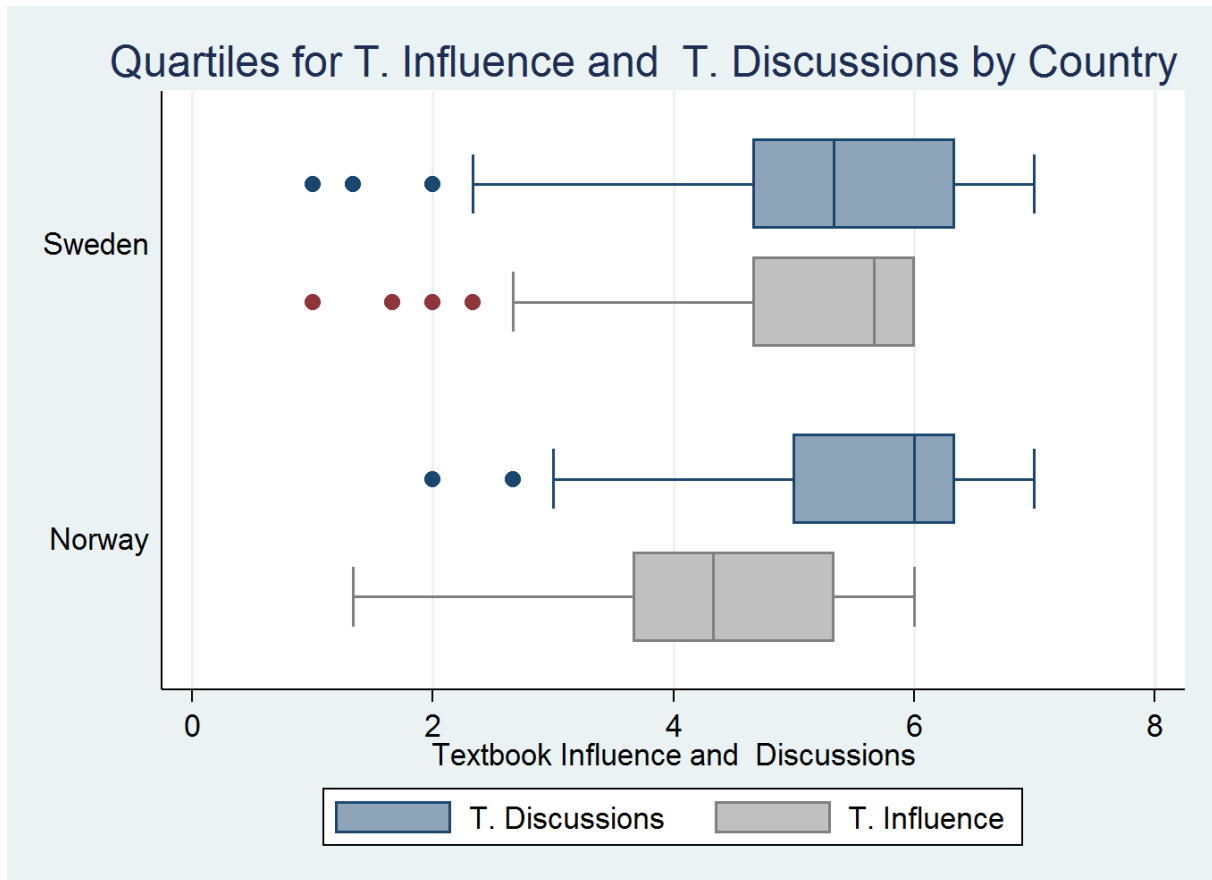


Figure 1. Boxplots of influence on textbook selection and involvement in textbook discussions by country

According to the test, the difference in feelings of influence on textbook selection between the countries was statistically significant ($t = -10.450$), but the magnitude of the differences was large ($d = -0.90$) in favour of the Swedish teachers. Although the difference in the textbook discussions between the countries was statistically significant ($t = -3.177$), the magnitude of the differences was small ($d = -0.27$) in favour of the Norwegian teachers. We conclude that there are country differences, in support of our first hypothesis.

To answer our second research question, we turned to regression analysis. We conducted a series of OLS regressions, which we used because the results are easier to interpret than, for instance, structural equation modelling or quantile regression. One problem with our design was that teachers were clustered into schools and countries. To adjust for this, we ran our first models using separate regression by country, including a dummy for every school (not shown in the output). As a third step, we ran a series of regressions with the combined sample, adding a dummy for the country (not shown

in the output). All estimations were made using robust standard errors. Our solution of adding dummies can be regarded as largely equivalent to a “fixed effect model.” As our research questions had no interest in school level variables (e.g. school size, student composition), our goal was to adjust our model to such effects.² We subtracted the means from all the continuous predictors. Subtracting the mean provides us with a more realistic interpretation of the coefficients, for example we can interpret the effect of a sex when controlling for the expected age of the teacher. Otherwise we make the unrealistic interpretation of the model as the effect of teacher’s sex when the teacher is zero years old.

Table 4 shows the unstandardized coefficients. Due to collinearity (VIF > 3.5) between age and teaching years, we had to run separate models for the predictors. Thus, we specify two models of teachers’ feelings of influence on textbook selection as follows, where β is the coefficient and ϵ the error term for the individual teacher in the j school:

$$\begin{aligned} \text{textbookinfluence}_{ij} &= \beta_0 + \beta_1 \text{sex}_{ij} + \beta_2 \text{TeachSpec}_{ij} + \\ &\quad \beta_3 \text{Age}_{ij} + \beta_4 \text{Age}_{ij}^2 + \beta_5 \text{School}_j + \epsilon_{ij} \\ \text{textbookinfluence}_{ij} &= \beta_0 + \beta_1 \text{sex}_{ij} + \beta_2 \text{TeachSpec}_{ij} \\ &\quad + \beta_3 \text{TeachYears}_{ij} + \beta_4 \text{TeachYears}_{ij}^2 + \beta_5 \text{School}_j + \epsilon_{ij} \end{aligned}$$

Our motivation for not dropping age in favour of teaching years is that age represents in part a different effect, as we will return to shortly. For effect size measure, we included the r-square (the proportion of explained variance). In addition, we used the Bayesian Information Criterion (BIC) (i.e. reduction in measurement error), given that the r-square is inflated by the large number of school dummy variables (omitted from the table). As discussed above, we excluded the dummies, as these are merely control variables for cluster effects.

As seen in Table 4, teaching experience mattered in both Norway and Sweden, thus we find support for our hypothesis in both countries. Going from 16 to 17 years of experience is predicted to increase teacher’s influence on textbook selection by .034 points in Norway and .036 in Sweden. The turning point is expected to come at 32.5 years of experience in Norway and 31.5 years of experience Sweden.³

We now return to the issue of the effects of life experience (or age). The experience gained over life had a curvilinear effect, as we discussed in the literature review. Young teachers have little influence on textbook selection, but as they gain life experience

2 However, we did not establish measurement equivalence between countries prior to testing.

3 We calculated $\text{TeachYear}^* = \left(\frac{\beta_3}{2\beta_4}\right) + \frac{\beta_3}{2\beta_4}$. Thus, we calculated $(0.031/(2*\text{abs}(-0.001)))+16$.

	Norway1 b/se	Sweden1 b/se	Norway2 b/se	Sweden2 b/se
Sex	-0.459** (0.168)	-0.172 (0.146)	-0.531** (0.168)	-0.195 (0.141)
Teaching special edu.	-0.026 (0.149)	-0.028 (0.109)	-0.008 (0.154)	-0.028 (0.107)
Age	0.020** (0.007)	0.022*** (0.005)		
Age ²	-0.001* (0.001)	-0.001* (0.000)		
Teaching years			0.032*** (0.007)	0.031*** (0.005)
Teaching years ²			-0.001 (0.001)	-0.001** (0.000)
Constant	4.602*** (0.124)	5.424*** (0.077)	4.547*** (0.123)	5.466*** (0.071)
School dummies (omitted)				
R-sqr	0.182	0.189	0.185	0.202
Dfres	214	287	211	287
BIC	686.3	781.8	677.4	776.8

Table 4. OLS regression for influence on textbook selection by country with robust standard errors
Note: *sig at 5%; **sig at 1%; ***sig at .1%. Unstandardized coefficients. Predictors are centered at the mean.

their influence increases. However, as seen in the scatterplot (Figure 2), something happens at around 56 years of age in Sweden and 55 years in Norway.⁴ Suddenly, teachers start to feel that their influence steadily decreases. Consequently, we find support for our third hypothesis in both countries, namely that teachers' age has a curvilinear relationship with influence on the textbook selection.

Overall, the effect size does not indicate what model to use, as the difference in r-square and BIC between models 1 and 2 can be seen as negligible.

As seen in Table 5, the teacher's sex has a statistically significant effect on involvement in textbook discussions in Norway, in support of the eighth hypothesis. In model 1, the effect of being female decreases the influence on textbook selection by .46 points compared to male, and this figure is 0.53 points in model 2. However, Sweden has no differences statistically significant from zero in terms of teacher's sex. Thus, we can interpret this finding as a moderation effect of the country. Moreover, having special educational teaching duties does not make a difference that is statistically significant from zero in either country. Thus, there is no support for the seventh hypothesis.

4 We calculated $Age^* = \left(\frac{\beta_3}{2\beta_4}\right) + \overline{Age}$. That is, we calculate $(.022/abs(2*(-0.001)))+45$ for Sweden and $(0.020/abs(2*(-0.001)))+45$ for Norway. As we subtracted the mean age of 45 from the model, it makes sense to add it back in for interpretation.



Figure 2. Scatterplot of effect of life experience and work experience on influence on textbook selection

	Norway3 b/se	Sweden3 b/se	Norway4 b/se	Sweden4 b/se
Sex	-0.112 (0.144)	-0.526** (0.167)	-0.133 (0.145)	-0.497** (0.168)
Teaching special edu.	0.006 (0.136)	0.329* (0.150)	0.010 (0.138)	0.299* (0.149)
Age	-0.001 (0.006)	0.002 (0.006)		
Age ²	0.000 (0.000)	-0.000 (0.001)		
Textbook selection	0.273*** (0.068)	-0.041 (0.082)	0.273*** (0.068)	-0.052 (0.082)
Teaching years			-0.011 (0.007)	0.007 (0.007)
Teaching years ²			0.001 (0.000)	0.000 (0.001)
Constant	5.822*** (0.123)	5.496*** (0.117)	5.802*** (0.116)	5.426*** (0.119)
School dummies (omitted)				
R-sqr	0.173	0.170	0.181	0.175
Dfres	212	278	209	278
BIC	637.8	920.8	627.0	919.1

Table 5. OLS regression for involvement in textbook discussions by country with robust standard errors
Note: *sig at 5%; **sig at 1%, ***sig at .1%

Now we turn to the third research question on involvement in textbook discussions. For this purpose, we again estimated our models by country using schools as dummies with robust standard errors. Once again, we found the collinearity ($VIF > .3.5$) between age and teaching years that forced us to separate models for the predictor. Thus, we specified our model similar to as done previously, only now we added influence on textbook selection as an independent variable instead of as a dependent variable. This did not cause collinearity.

$$Textbookdiscussion_{ij} = \beta_0 + \beta_1sex_{ij} + \beta_2TeachSpec_{ij} + \beta_3Age_{ij} + \beta_4Age_{ij}^2 + \beta_5Textbookinfluence_{ij} + \beta_6School_j + \epsilon_{ij}$$

$$Textbookdiscussion_{ij} = \beta_0 + \beta_1sex_{ij} + \beta_2TeachSpec_{ij} + \beta_3TeachYears_{ij} + \beta_4TeachYears_{ij}^2 + \beta_5Textbookinfluence_{ij} + \beta_6School_j + \epsilon_{ij}$$

This time, we found the opposite sex pattern, in support for the eight hypotheses. As can be seen, the teacher's sex had a statistically significant effect in Sweden. The effect of being female decreased involvement in textbook discussions by 0.53 points in model 3, and by 0.50 points in model's 4. However, Norway had no differences statistically significant from zero in terms of teacher's sex. This is the first country moderation effect, and we now turn to the second. Having special educational teaching duties does make a difference that is statistically significant from zero in Sweden. The effect of special educational teaching duties increased involvement in textbook discussions by 0.33 points in model 3, and by 0.30 points in model 4. Thus, this time there is support for the seventh hypothesis. Table 5 shows a third moderation effect.

Turning to the fourth hypothesis, we can again see a curvilinear relation, this time between age and involvement in textbook discussions. However, the effect is not statistically different from zero. Consequently, we found no statistically significant support for the hypothesis. Similar teaching experience did not have a statistically significant effect, and therefore we found no statistically significant support for the fifth hypothesis.

There is a statistically significant effect of teachers' influence on textbook selection in Norway on involvement in the textbook discussions. The estimated effect of a Norwegian teacher with a maximum feeling of influence on the textbook selection is an increased involvement in textbook discussions, by 1.64 points in model 3 and by 1.60 in model 4. Thus, we found support for our sixth hypothesis, as there is an increasing linear effect of teachers' feelings of influence on textbook selection on involvement in textbook discussions in Norway, but not in Sweden.

Again, deciding between models was difficult, as all have the same r-square, i.e. 17 to 18% in explained variance. However, model 4 appeared slightly better in terms of BIC

for both countries, and we disregarded differences between countries in BIC, as the measure can be sensitive to sample size. Thus, we settled for model 4.

	NorwaySweden1 Textbook discussion b/se	NorwaySweden2 Textbook discussion b/se	NorwaySweden3 Textbook selection b/se	NorwaySweden4 Textbook selection b/se
Sex	-0.340** (0.114)	-0.356** (0.114)	-0.312** (0.109)	-0.341** (0.107)
Teaching special edu.	0.161 (0.101)	0.167 (0.102)	-0.020 (0.091)	-0.019 (0.091)
Textbook selection	0.122* (0.056)	0.118* (0.056)		
Age	0.001 (0.005)		0.021*** (0.004)	
Age ²	0.000 (0.000)		-0.001*** (0.000)	
Teaching years		-0.000 (0.005)		0.031*** (0.004)
Teaching years ²		0.001 (0.000)		-0.001*** (0.000)
Constant	5.555*** (0.081)	5.493*** (0.079)	5.075*** (0.068)	5.081*** (0.065)
Country dummy (omitted)				
School dummies (omitted)				
R-sqr	0.160	0.167	0.333	0.335
Dfres	495	492	505	502
BIC	1552.3	1539.1	1458.3	1445.7

Table 6. OLS regression for involvement in textbook discussions and influence on textbook selection pooled sample with robust standard errors
Note: *sig at 5%; **sig at 1%; ***sig at .1%

Finally, we arrive at research questions four and five. We report on the combined sample in Table 6.⁵ The model specification is identical to those above, but this time we added a dummy variable for the country. Thus, we did not specify the model formally, in order to avoid redundancy. We also estimated our model with robust standard errors. Combining the two samples does change the effects. First, there is an effect of teacher's sex across all models, in support of our eighth hypothesis. In model 1, we found that being a female teacher decreases involvement in the textbook discussions by 0.34 points, and by 0.36 in model 2. There is also an effect of influence on textbook selection – as an independent variable – on textbook discussions. Holding all other variables, a teacher with maximum influence on the textbook selection would on average increase textbook discussions by 0.73 points in model 1, and by 0.71 points in model 2.

Turning to influence on the textbook selection – as a dependent variable – we also found an effect of teacher's sex. Being a female teacher decreases one's feeling

5 Note that we did not establish measurement equivalence between countries prior to testing.

of influence on the selection of textbooks by 0.31 points in model 3, and by 0.35 points in model 4 compared to males. We also noted a quadratic effect of age. Taking the derivative, we can see that the rate of influence on textbook selection changes by .019, meaning that when going from 45 to 46, it is predicted that teachers feel a decrease of approximately .07 points in possibilities to influence. We can identify the turning point in the teacher's life at approximately 55.5 years of age.⁶ Finally, we noted a curvilinear effect of teaching experience in both countries. In going from 16 to 17 years of experience, it is predicted that the teachers' influence will increase by .063 points. The turning point occurs when teachers move to 32 years of work experience for model 2.⁷

We have now presented a number of tests, and will conclude the paper by discussing our findings in relation to our research questions and hypotheses.

5. Discussion and conclusions

While there is a substantial amount of Scandinavian research on textbooks and curricular materials, hardly any has focused on teachers' influence on textbook selection (Aamotsbakken & Skjelbred, 2010; Vareberg & Askeland, 2013; Reichenberg, 2014). Therefore, we wanted to identify the independent variables of influence on textbook selection and involvement in textbook discussions. Moreover, there is also a lack of a comparative dimension in the Scandinavian studies, which is a major methodological issue because life and work experience of the teaching profession tend to vary across countries. Consequently, the aim of this study was to compare Swedish and Norwegian teachers' influence on textbook selection, and the impact of this on the *textbook discussions*.

This study makes three major contributions. The first is a unique comparison between Sweden and Norway. Although we know from previous research that teaching tends to vary across cultures, most of these studies lack a comparative dimension (Le Tendre, Baker, Akiba, Goesling, & Wiseman, 2001). To address this, we conducted a teacher survey with Norwegian and Swedish teachers in teachers in grade 0 to 9 - which comprises pupils at approximately ages 6 to 15. Norway and Sweden were selected because we wanted a *most-similar design* and to demonstrate differences in teaching even across two similar countries. The second contribution is producing two new measures of teaching – influence on textbook selection and involvement in

6 We calculated $Age^* = \left(\frac{\beta_3}{2\beta_4}\right) + \overline{Age}$. Here, we calculated the following values: $(0.021/abs(2*(-.001)))+45$. Again, we centered the predictors so we hold the values at the mean in the final step of the calculation.

7 We calculated $TeachYear^* = \left(\frac{\beta_3}{2\beta_4}\right) + \overline{TeachYear}$. Or, $0.031/(abs(-0.001)*2) \approx 15.5$. We then add the mean experience of 16.39.

textbook discussions – while the third contribution is a test of eight hypotheses with regard to the two measures. Although there are several studies of teachers' selection of textbooks and other curricular materials, these tend to fail to test the association. Thus, our study makes a substantial conceptual and empirical contribution.

The first research question was: To what extent do Norway and Sweden differ with regard to teachers' (a) involvement in textbook discussions and (b) influence on textbook selection? We conclude that there are mean differences between the countries. However, these differences were considerably larger in magnitude in teachers' influence on textbook selection, and here we find support for our initial prediction. We suggest that the greater effect in Sweden of textbook selection may be a consequence of differences in teachers' work- and life experiences.

Our second research question was: What is the effect of (a) age, (b) experience, (c) sex, and (d) special education teaching on teachers' influence on textbook selection across Norway and Sweden? In support of our initial prediction, we find a significant curvilinear relationship between age and teachers' influence on textbook selection in both countries. Previous studies suggested that older teachers bring solidified views about knowledge, learning, and students, which can hinder them in adapting to the teacher's role (Caspi & Roberts, 2001; Hargreaves, 2005; Maskit, 2011). This means that older teachers feel frustrated because their life experiences are not being valued (Ayers, 1995; Yong, 1995; Hargreaves, 2005; Phillips & Carr, 2014).

In support of our initial prediction, we conclude that there is a curvilinear effect of teaching experience in both countries. We suggest that many inexperienced teachers choose to educate themselves as teachers because they have strong expectations for educating tomorrow's citizens and feel they can make a difference. However, the longer they work as a teacher, the more frustrated they become, and they eventually abandon the possibility of influencing textbook selection (Ayers, 1995; Yong, 1995; Hargreaves, 2005; Phillips & Carr, 2014). Their frustration is understandable since the student population is more diverse than ever (Hargreaves, 2000), and this thus increases the demand on teachers to adopt textbooks and other instructional materials that are appropriate for student needs. Therefore, teachers want to influence textbook selection, to adopt them in line with the specific needs of their students as opposed to taking the "one textbook fits all" approach. These teachers may be faced with principals and school districts that refuse to allow them to be part of the decision-making process, such as those making cutbacks in textbooks (Holmlund et al., 2014). Inexperienced teachers have not yet faced such managerial decisions from principals or schools districts, and consequently they do not feel the same frustration. Here, the experienced teachers' feeling of a lack of influence what new textbooks to buy may be part of the explanation (Aasen, Møller, Rye, Ottesen, Prøitz, & Hertzberg, 2012). Teachers that feel frustrated may have given up on developing textbook discussions with colleagues and the principal because they have already resigned themselves to failure. Moreover,

in support of our prediction, we also found an effect of being a female teacher in Norway, but not in Sweden. Finally, we conclude that there is no support for our prediction that special education teaching affects the influence on textbook selection.

Our third research question was: What is the effect of teachers' (a) age, (b) experience, (c) sex, (d) special education teaching, and (e) influence on textbook selection on involvement in textbook discussions across Norway and Sweden? We found support for our prediction that being a female decreased your involvement in the textbook discussions compared to male in Sweden but not in Norway. Our findings add to the extensive body of evidence that shows that differences in teacher's sex matter in instruction (Sabbe & Aelterman, 2007). However, providing an explanation is outside the scope of the study. There was also a negative effect of having special education teaching duties in Sweden but not in Norway. Furthermore, we did not find statistically significant effects of teaching experience or life experience on involvement in textbook discussions. Finally, feelings of influence on textbook selection were important in Sweden but not in Norway in the development of textbook discussions. Once again, we conclude that there is support for our predictions.

Our fourth and fifth research questions were: What is the effect of (a) age, (b) experience, (c) sex, and (d) special education teaching on teachers' influence on the selection of textbooks for the combined samples of Norway and Sweden? and What is the effect of teachers' (a) age, (b) experience, (c) sex, (d) special education teaching, and (e) influence on the selection of textbooks and involvement in textbook discussions for the combined samples of Norway and Sweden? We found that teacher's sex had a major effect that was not bounded to the subsets of Norway and Sweden. In addition, we found that the curvilinear effect and teaching experience effect remained when combining the samples.

Our study has shown how differences in teaching - as indicated by teachers' involvement in textbook discussions and influence on textbook selection - vary between strikingly similar countries. As such our study contributes to a better understanding of how teaching context matters regardless of similarities in welfare and educational systems. We conceive our findings as a support for the theoretical and practical significance for comparative studies of teaching on the basis of teachers' life- and work experiences. At the same time we hold that future studies could capitalize on paying closer attention to the non-linear theorizing in comparative research on teaching. This has for long been acknowledged by ethnographic studies on teaching – “narrative turning points”- but has not been fully appreciated by quantitative comparative studies.

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