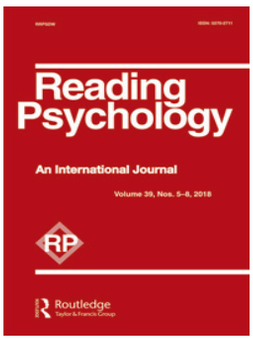

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COMPARING SWEDISH AND NORWEGIAN TEACHERS' PROFESSIONAL DEVELOPMENT: HOW HUMAN CAPITAL AND SOCIAL CAPITAL FACTOR INTO TEACHERS' READING HABITS

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The present study compares how Swedish (n = 340) and Norwegian (n = 236) teachers' human capital and social capital support reading habits as an aspect of professional development. The overall aim was to describe how teachers' human and social capital support their professional development as measured by the aspect of reading habits during leisure time. Our research questions were: To what extent do Swedish and Norwegian teachers differ in their reading habits during leisure time? To what extent do young and old Swedish and Norwegian teachers differ in their reading habits during leisure time? To what extent does Swedish and Norwegian teachers' social capital (collegial talk, principal talk) predict their reading habits during leisure time? To what extent does Swedish and Norwegian teachers' human capital (based on their age, education, and work years) predict their reading habits during leisure time? We compared teachers' reading habits between countries. Older teachers read, on average, more fiction, nonfiction, and newspapers. However, younger teachers in both countries are more prone to read digital texts than older teachers. By contrast, teachers' social capital only seemed to matter in Sweden, while talks with the principal had no effect in either country.

Teachers are working in a climate of higher standards and raised expectations. They are expected to cover a set curriculum over the course of the year, raise student test scores, and maintain

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Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/urpy.

order in the classroom (Hocutt, 1996). Teachers have been faced with educational policy reforms that mirror developments in the science of teaching, cooperative learning, assessment strategies, information technologies, and the challenge of adapting instruction to the needs of students from diverse backgrounds and with special needs.

To meet these challenges, teachers need professional capital (Hargreaves & Fullan, 2013), which includes—but is not limited to—having education and experience (human capital) and continuous improvement over time undertaken collaboratively (social capital).

Over time, policies and practices build up the expertise of teachers individually (human capital) and collectively (social capital) to make a difference in the learning and achievement of all students. In theory, professional capital should also trigger professional development. However, research on the association between teachers' professional capital and teacher development has mostly focused on Canada, the United States, the United Kingdom, and Australia (Hargreaves & Fullan, 2013; Spillane, Hallett, & Diamond, 2003). In addition, there is a lack of studies on teachers' leisure-time reading as an aspect of professional development. In agreement with Commeyras and DeGroff (1998), we contend that teachers' leisure-time reading is part of their continuing learning and, hence, their professional development.

In this article, we will study two Nordic countries, Sweden and Norway, which have modern comprehensive schools with large secondary and tertiary sectors. The study advances the current state of research by making the following contributions. First, we will provide evidence for an association between teachers' professional capital (human and social) and teachers' reading habits during leisure time that holds for both Sweden and Norway. Our second contribution is to show that even when sampling most similar cases, such as Sweden and Norway, there may still be differences in how different forms of teachers' professional capital (human and social) impact reading habits during leisure time because teachers' social capital will not have the same impact in both countries. Our third contribution is to study teachers' reading habits as an aspect of professional development. Teachers' reading habits are seriously underinvestigated. However, reading habits during leisure time may be a critical

measure of teachers' development that theoretically can be independently observed from collaboration at the school. In our study, reading habits is defined as teachers' leisure-time reading.

The Overall Aim

The overall aim was to describe how teachers' human and social capital support their professional development as measured by the aspect of reading habits during leisure time. By describing reading habits during leisure time, we focus on fiction, nonfiction, newspapers, and digital texts.

Our research questions were:

1. To what extent do Swedish and Norwegian teachers differ in their reading habits during leisure time?
2. To what extent do young and old Swedish and Norwegian teachers differ in their reading habits during leisure time?
3. To what extent does Swedish and Norwegian teachers' social capital (collegial talk, principal talks) predict their reading habits during leisure time?
4. To what extent does Swedish and Norwegian teachers' human capital (based on their age, education, and work years) predict their reading habits during leisure time?

The remainder of the article is structured as follows. First, we discuss the state of research and theories on teachers' forms of capital and reading habits during leisure time. Second, we discuss the data and measurements that are used. Third, we present the results of the study and, finally, we provide a discussion and conclusions.

Conceptual Framework and Literature Review

Teachers' Reading Habits as an Aspect of Professional Development

As mentioned above, teachers' leisure-time reading is supposed to be part of their continuing learning and, hence, their professional development. Professional development matters for teachers' (a) content knowledge (i.e., reading, math, language, etc.; Morrison, Jacobs, & Swinyard, 1998), (b) propensity to use

scientific instructional strategies (McKool & Gespass, 2009), and (c) for students' achievements in reading and math (Hargreaves & Fullan, 2013).

Evaluation studies suggest that professional development might matter more for teachers than their undergraduate training (Harris & Sass, 2009). For example, in a longitudinal study the researchers found that professional development was positively associated with student's reading achievement. In contrast, teachers' undergraduate training had no statistically significant effect. Findings such as this one are, in our opinion, encouraging because longitudinal data provide evidence for causal effects (Harris & Sass, 2009). Another example is the work of Andreassen (2012), who showed that Norwegian teachers considered further self-directed professional development to be more important for their knowledge of special needs education than their formal pre- and in-service education.

Professional development after graduation training includes, among other things, how teachers take responsibility for their own learning. Teachers who continually read during their leisure time and thus develop themselves in their teaching and their knowledge about their subjects will be better equipped to meet the needs of diverse student groups and motivate them to read. The teachers can share their own reading experiences with their students and demonstrate how reading can enhance and enrich one's life (Benevides & Stagg Peterson, 2010; Burgess, Sargent, Smith, Hill, & Morrison, 2011).

Nevertheless, literature suggests that teachers engage in relatively little professional reading, especially when compared to the reading habits of other professionals (Rudland & Kemp, 2008). Furthermore, the reading that was undertaken by the teachers in Rudland and Kemp's study was principally from periodicals that were largely pragmatic in nature.

Most teachers[1] in McKool and Gespass's (2009) study valued reading for pleasure (i.e., fiction, poetry, and magazines) as a leisure-time activity, but only about half read for pleasure on a daily basis. The researchers also found that teachers who read for more than 30 min per day used a greater number of best practice

[1]Fourth-, fifth-, and sixth-grade teachers who taught reading as one of several subjects.

strategies and that those who read for pleasure tended to share insights from their own personal reading (McKool & Gespass, 2009). The teachers[2] in Burgess et al. (2011) study were asked to estimate how many books they read each month for their own pleasure during their leisure time. Many teachers reported not having enough time to read or that they did their leisure reading during the summer months.

In summary, we have discussed what professional development is, why it matters, and how it relates to teachers' reading. In the next section, we will discuss what predicts professional development such as reading. We will focus on teachers' professional capital.

Professional Capital: Human Capital and Social Capital

Teachers' professional capital is comprised of three kinds of capital: human capital, social capital, and decisional capital (Hargreaves & Fullan, 2013). Human capital is the qualities of the individuals, their qualifications and competencies—such as teacher experience, subject knowledge, and pedagogical skills—on paper. Human capital is developed through formal education and on-the job-experience. In the current study, we are interested in teachers' human and social capital. Regarding human capital, we are specifically interested in determining whether or not the teachers also have a degree in special education in order to meet the special needs of the students.

Social capital can raise individual human capital—a good team, school, or system lifts everyone (Fullan, Rincón-Gallardo, & Hargreaves, 2015; Hargreaves & Fullan, 2013). A school has a high degree of social capital when the teachers work in groups in a collaborative way to focus on learning, engagement, and improved student achievement. In such groups teachers can, for instance, talk about what textbooks to select in order to meet the special needs of the students (Darling-Hammond, Wilhoit, & Pittenger, 2014).

Decisional capital refers to teachers' capability to make judgements during instruction. We will not focus on decisional capital for the following reason. There is little to no guidance on how to measure decisional capital. Omitting the aspect of

[2]Kindergarten, first-, second-, and third- to fifth-grade teachers.

teachers' decisional capital is a theoretical and empirical limitation of the study.

For the purpose of our study, as mentioned above, we are concerned with teachers' human and social capital. Relevant human capital variables are *age, teaching experience,* and *special education*; relevant social capital variables in schools include *teacher and principal collaboration.*

Teachers' human capital. Teachers' human capital matters in several ways. Additional qualifications, such as a special education degree, may change how teachers engage in professional development (Andreassen, 2013). Bele (2011) found that special educators to a higher degree than regular teachers read nonfiction (expository) texts. Andreassen (2013) found that being a Norwegian special educator seemed to be associated with a higher propensity to search the web for scientific information in comparison to regular teachers. Author explained this finding with the rationale that special educators continually have to look for new information about reading and writing difficulties and diagnoses. However, no age differences were found in Author's study.

However, age and experience may also be critical. According to Hargreaves and Fullan (2013), teaching careers have an inversed "U" shape, meaning that teachers' efficacy increases in the first years of their teaching career; thereafter, it decreases during their final years. The first years are characterized by teachers seeking new methods, materials, and strategies; they have a desire to face professional challenges, a constant process of self-study, a deepening of both intellectual knowledge and practical knowledge, and a strong professional consciousness of a need for change. However, on average, they are less competent and still have a lot to learn. At the same time, these teachers usually have young children, and taking care of them comes at the expense of free time that could have been devoted to reading. This is not the case with those whose children are grown up and perhaps no longer live at home anymore (Caspi & Roberts, 2001; Maskit, 2011). Livingstone (2001) found that, to a higher degree, young teachers talk to colleagues to obtain advice, while older teachers read nonfiction (expository texts) for advice. Teachers in the middle of their careers—with experience from 4 to 20

years—are, on average, the most committed and capable (Hargreaves & Fullan, 2013). There is a drop in the final years that has to do with many things—the lives of the teachers, aging parents, experiences with change, principal turnover, and capabilities—that are all over the map (Caspi & Roberts, 2001; Hargreaves & Fullan, 2013; Maskit, 2011).

Teachers' social capital. Teachers' social capital has often been cited as a cause of change (Spillane, Hallett, & Diamond, 2003). Teachers who have colleagues to talk with regarding new ideas have greater confidence to use them in instruction. Social capital may also matter for teachers' professional development. Having colleagues to talk to may be an inspiration. However, colleagues may also act as a source of pressure on their fellow teachers to uphold standards of professionalism, such as by engaging in developmental activities.

To move professional capital forward, the principal is important. The principal can pay attention to, inspire, and intervene for more professional capital (Hargreaves & Fullan, 2013). Principals can also provide opportunities to meet with teachers to talk about teaching and teaching materials (Fullan, Rincón-Gallardo, & Hargreaves, 2015).

Many teachers reinforce their professional knowledge by reading information on the Internet and talking with colleagues. For example, Andreassen (2013) and Bele (2011) found that talking to colleagues is one of the most important sources for acquiring knowledge among Norwegian teachers.[3] The results are in line with those in the TNS Gallup (2008) survey-study with more than 1,700 Norwegian teachers in comprehensive school and upper secondary school. It was found that 80%–90% of the teachers asked their colleagues or searched the Internet when they wanted new knowledge.[4,5]

[3]Bele did not include digital reading in her study.

[4]As a comparison an American survey study, where other professionals were included, Berg and Chyung (2008) found that older professionals used the Internet and read newspapers in order to acquire knowledge to a higher degree than younger professionals.

[5]As a comparison to the general population, Norwegian women read more books than men. However, men read more e-books in comparison to women. Elder adults read more books than young adults. But young adults read more e-books than elderly people (Leserundersøkelsen, 2016). The same patterns among young and old readers are found in Sweden as well (Mediebarometern, 2017).

Methods

Context

We will compare Sweden and Norway because they are the most similar cases. Both countries have a social democratic welfare state despite various liberal policy changes from the 1990s onward and a tradition based on strong citizen support for social security policies (Svallfors, 2004). Both countries have modern comprehensive schools with large secondary and tertiary sectors. Moreover, in both countries national initiatives have been launched in order to strengthen the position of reading and writing literacy among young people. Both initiatives have been financed by their respective governments.[6,7] However, contrary to the Swedish initiative, Läslyftet (Literacy boost), the Norwegian initiative – Kunnskapsløftet (the Knowledge Promotion Reform)- is a national curriculum reform. The goal of this reform is to help all students to develop fundamental skills. These basic skills have been incorporated into all subject syllabi throughout years 6–18.

Participants

In the present study, data were collected using the same sampling frame (teachers in K–9 education) and strategy in Sweden and Norway to ensure comparability. The data collection was restricted to two areas: western Sweden and southeast Norway. Both areas shared characteristics, such as having a high proportion of industrial workers and a multiethnic yet socially segregated society, meaning that the student population was highly diverse.

The sample consisted of 340 Swedish teachers in 14 medium- to large-sized schools and 236 Norwegian teachers in 10 small- to medium-sized schools. The teachers were recruited by a respondent-driven sampling strategy (nonrandom), with student teachers asked to mediate contact with their respective schools.

[6]The Norwegian Directorate for Education and Training (2015). Retrieved from https://www.udir.no/in-english/.

[7]Läslyftet-Literacy boost (2017). Retrieved from: http://www.eli-net.eu/good-practice/examples-of-good-practice/detail/project/laeslyftet-literacy-boost.

We agree with Commeyras and DeGroff (1998) that it is important to gain knowledge from a variety of teachers concerning their reading habits.

Consequently, we surveyed teachers across subject areas. 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. Each researcher had an introduction in which they explained the purpose of the questionnaire and the researchers also presented information when the teachers filled in the questionnaires so that the teachers could ask questions. Participation was voluntary, and all data was treated anonymously and confidentially.

We sought to sample all teachers at each school within our sampling frame. The sampling strategy ensured that we covered schools across the two areas. However, we could not eliminate the risk that the sampling parameters could have been over- or underestimated with regard to the true population parameters.

Variables

In the main study, a survey was designed. The participants were asked to rate each item on a Likert-type scale ranging from 1 ("completely disagree") to 7 ("completely agree"), to respond to the questions. In the current study, which is a part of the main study, we selected the following items from the survey to measure teachers' leisure-time reading (see Table 1). First, "I often read newspapers in my leisure time?"; second, "I often read nonfiction (expository texts) in my leisure time"; third, "I often read fiction in my fiction in my leisure time"; and fourth, "I often read digital media in my leisure time (e-reader, iPad, or computer)."

There were two questions regarding collaboration (*teachers' social capital*). First, "To what extent are you able to talk about teaching materials with your colleagues?" and second, "To what extent are you able to talk about teaching materials with your principal?"

Moreover, three questions were used to measure *teachers' human capital*: First, "How many years have you worked as a teacher?" The question was asked in order to approximate the depth of the teaching experience. The mean teaching years were

TABLE 1. Descriptive Statistics by Country

Variable	Mean	Proportion	Std. Dev.	Min	Max
Norway					
Reading					
Read newspaper	5.568		1.690	1	7
Read nonfiction	5.042		1.826	1	7
Read fiction	4.199		1.420	1	7
Read digital	5.907		1.496	1	7
Teacher social capital					
Talk principal	5.410		1.480	1	7
Talk colleagues	6.119		1.093	2	7
Teacher human capital					
Teaching years	16.627		10.731	0.3	44
Teacher age	44.526		10.970	23	68
Special education					
No		0.93			
Yes		0.07			
Control					
Teacher sex				0	1
Male		0.29			
Female		0.71			
Sweden					
Reading					
Read newspaper	5.298		1.966	1	7
Read nonfiction	5.239		1.871	1	7
Read fiction	4.515		1.792	1	7
Read digital	5.609		1.744	1	7
Teacher social capital			1.391		
Talk principal	4.356		2.100	1	7
Talk colleagues	6.009		1.391	2	7
Teacher human capital					
Teaching years	16.230		11.875	0.3	44
Teacher age	45.316		12.116	23	68
Special education					
No		0.89			
Yes		0.11			
Control					
Teacher sex				0	1
Male		0.23			
Female		0.77			

16 in Sweden and 17 in Norway. Second, "How old are you?" The question was asked to measure the life experience of the teacher. There, the mean teacher age was 46 in Sweden and 44 in Norway. Third, "Do you have a special education degree?" Here we

wanted to measure the teachers' formal education; in this case, whether they had obtained a special education degree (which corresponds to a master's degree in Sweden and Norway). Although we could have used a teaching degree as predictor, almost all of the teachers in the Norwegian sample held a teaching degree. As such there was little to no variation in this variable in one of the samples.

Finally, we used *teacher sex* as a control variable. In both Sweden and Norway, the majority of the sampled teachers were female (70%). The sample reflects the population as the occupation tends to be dominated by women in both countries.

Table 1 reports the means, proportions, standard deviations, and minimum/maximum for the variables in the study. As can be seen, two of the questions were somewhat skewed to the left in both the Swedish and Norwegian sample. Therefore, we used robust standard errors for our regression models, as reported in the Results section, to correct for potential bias of the standard errors. The average reading reported by the teachers can be expected to be related to the way they teach. A high level of readership may also reflect high intellectual aspirations.

Turning to Table 2, the reading habit questions were fairly well correlated in the Swedish sample. The correlation in the Swedish sample ranged from 0.37 to 0.40. The correlation was somewhat weaker in the Norwegian sample, ranging from 0.12 to 0.30. However, we noted that digital reading is far less correlated with the other measures of reading. The weak correlation suggests that digital reading is a distinct form of reading among the teachers in the sample.

We note that there is a strong correlation between age and teaching years. As such, we conducted a test of the "variance inflation factor" (VIF) to check for collinearity in our regressions models reported in the results section (VIF = 3.5). However, the VIF was not a substantial problem.

The measure of reading habits were reasonably correlated in Table 2, so we decided to compute a reading index for reading habits. Although the correlation was weaker in the Norwegian sample, we wanted to be able to compare the two countries. We were guided by theoretical concerns rather than by measurement alone. In Table 3, we report the rotated factor loadings for reading in Sweden and Norway. The factor analysis indicates that the

TABLE 2. Correlations by Country

Variables Norway	1	2	3	4	5	6	7	8	9
1. Read Newspaper	1								
2. Read Nonfiction	0.30	1							
3. Read Fiction	0.14	0.15	1						
4.Read Digital	0.00	−0.09	0.07	1					
5. Talk Principal	0.01	0.12	0.18	0.00	1				
6. Talk Colleagues	0.16	0.11	0.07	0.05	0.58	1			
7. Teaching Years	0.28	0.17	−0.10	−0.29	0.00	0.03	1		
8. Teacher Age	0.30	0.25	0.01	−0.31	0.07	0.07	0.85	1	
9. Teacher Sex	−0.07	−0.37	0.01	0.07	−0.09	−0.06	0.07	0.00	1
Variables Sweden	1	2	3	4	5	6	7	8	9
1. Read Newspaper	1								
2. Read Nonfiction	0.43	1							
3. Read Fiction	0.37	0.41	1						
4. Read Digital	0.10	0.00	0.09	1					
5. Talk Principal	0.09	0.08	0.19	0.05	1				
6. Talk Colleagues	0.16	0.28	0.22	0.01	0.39	1			
7. Teaching Years	0.37	0.30	0.26	−0.16	0.05	0.16	1		
8. Teacher Age	0.39	0.33	0.34	−0.19	−0.01	0.05	0.82	10	
9. Teacher Sex	−0.12	−0.20	−0.07	0.06	−0.09	−0.18	−0.15	−0.13	1.00

measure works well in Sweden, loading between 0.57 and 0.61. The loadings for Norway were not as good. One variable was below the arbitrary cut off of 0.3. However, it was not so far off that we could not proceed. We summed the three items, divided the total by the theoretical maximum of 21, and multiplied by 100. This implied that we had a scale with 100 as the new maximum, thus making interpretations easier.

We did not do the same for teachers' social capital because the results from a factor analysis suggested that these considerations were not reasonably correlated in either country. Instead, we computed the individual z-score for these variables; for example, $\frac{x-\overline{x}}{s.d.}$. Z-scores made the variables more interpretable because one-

TABLE 3. Rotated Factor Solutions for Factor Analysis by Country

Variable	Reading factor: Sweden	Reading factor: Norway
Read newspaper	0.587	0.450
Read nonfiction	0.609	0.460
Read fiction	0.565	0.286

unit increases in the standard deviation of a 1–7 scale were not as intuitive. For teaching years and teacher age, we only subtracted the mean, i.e. centered at the mean. By subtracting the mean from one variable—as in centering or z-scores—we can interpret the variables as being at their expected value (i.e., the mean) as opposed to zero. For instance, zero is not a reasonable value for age. Special education was dummy coded (1 = yes, 0 = no).

Validity of Reading Behavior

The reader might ask if these reading variables have any relation to professional reading. Although our survey did not include specific questions about professional reading, we have a question about "Do you search the web for scientific studies" (search behavior as opposed to reading behavior). Consequently, we computed the correlation between these questions as a validation of the potential scientific attributes. We found that fiction reading had a moderate correlation at 0.36, whereas newspapers, digital reading, and nonfiction (expository texts) had a low correlation ranging from 0.15 to 0.19. In other words, fiction reading, as one might suspect, has the strongest relation to scientific reading. To further strengthen this argument, we also computed a correlation between a survey question about "Do you choose teaching materials based on research?". The correlation was low to moderate at a magnitude of 0.26.

Modeling strategy. For estimating the reading index, we computed a linear regression because we are able to treat the score as continuous. Here we model the teachers' types of capital by country with school fixed effects (i.e., dummies).

In contrast to the other reading behaviors, digital reading is a distinct scale that does not correlate with some common underlying latent variable. Consequently, we cannot simply include it in a reading index. Instead we have to treat the variable as ordinal. The proper modeling strategy is to estimate ordered logistic regression model. For our purpose we report the coefficients, but focus on the predicted probabilities. Moreover, we conducted a so-called Brant Test (Agresti, 2015) to assess the assumption of proportional odds (i.e., that the magnitude of the coefficients is the same across the cut points). The test was

nonsignificant, which suggests that we have insufficient evidence for rejecting the null hypothesis. The null hypothesis is that there are systematic differences in the magnitude of the coefficients. The OLS and logistic model is specified the same way, but we omitted the school fixed effects in the logistic case.

Results

The results section is organized as follows: First, we begin by reporting descriptive statistics on teachers' readings habits. Second, we conduct a series of t-tests to see if country differences were significantly different. Third, we look at subgroups within the sample. Fourth, we proceed with reporting regressions models for both countries.

Our first question was, "To what extent do Swedish and Norwegian teachers differ in their reading habits during leisure time?" Figure 1 displays the differences in means between Swedish and Norwegian teachers. There do not seem to be much difference in the reading indexes between or among Norwegian and Swedish teachers. We then turn to the individual measures on their original scales. There seem to be slight visual differences with regards to the average nonfiction (expository texts) and digital reading. Norwegian teachers seem to be more prone to these types of reading, on average. However, on average, Swedish teachers seem to be slightly more prone to nonfictional reading. Although graphics informs us about differences in percentiles, we cannot evaluate differences based on graphics alone.

Now we turn to testing the differences in means. We can see that Swedish and Norwegian teachers do not differ significantly in mean reading habits. We conducted a t-test with bootstrapped standard errors, but that turned out to be nonsignificant ($t = 0.82$, S.E. $= 0.984$, $p =$ N.S.). Also, the size of the difference was negligible ($d = 0.07$, CI $= -0.096, 0.237$).

When comparing indices, there is a risk that the measures may be biased due to the aggregation of measurement errors. If we test for individual items, we find a somewhat different pattern. First, there was no significant difference for reading newspapers between Norwegian and Swedish teachers ($t = -1.71$, S.E. $= 0.978$, $p =$ N.S.). In addition, the size in differences in newspaper

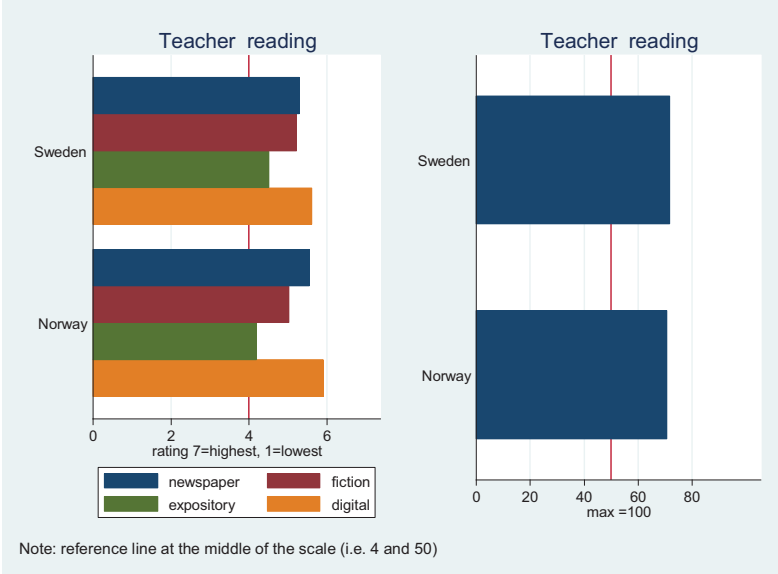

FIGURE 1. Bar charts for mean teacher reading by country.

reading were small and could be rejected as the confidence interval overlapped with zero ($d = 0.145$, CI $= -0.312$, 0.022). Second, there was no significant difference for reading nonfiction (expository texts) between Norwegian and Swedish teachers ($t =$ 1.248, S.E. $= 994$, $p =$ N.S.). In addition, the size in differences in nonfiction reading were small and could be rejected as the confidence interval overlapped with zero ($d = 0.106$, CI $= -0.061$, 0.273). However, we could find a significant difference between Norwegian and Swedish teachers in fiction reading ($t = 2.255$, S. E. $= 990$, $p < 0.05$). The difference was small but could be accepted as the confidence interval did not overlap with zero (d $= 0.192$, CI $= 0.025$, 0.358). Similarly, there seems to be a small difference in the magnitude of differences in digital reading (d $= -0.18$, C.I. $= -0.347$, -0.014). But when computing a t-test with bootstrapped confidence standard errors, we find no statistically significant differences in digital reading between the countries ($t = 1.248$, S.E. $= 0.994$).

We have now looked at differences between Swedish and Norwegian teachers as though they were one population. However, as discussed in the literature review, there are good reasons

to explore whether or not differences exist amongst Swedish and Norwegian teachers due to age. Thus, we want to address our second research question: "To what extent do young and old Swedish and Norwegian teachers differ in their reading habits during leisure time?" Here we are concerned with teachers' human capital. In Table 4, we report the mean for the individual reading items as well as the reading indices. The overall pattern seems to be that in both countries we find a linear relationship between age and reading habits. For example, both Swedish and Norwegian teachers whose age ranges from 18 to 25 ($M = 52, 46$) read less compared to those in the 46–68 age group ($M = 78, 80$) with a mean difference of 26 and 34 points. This finding indicates a greater mean difference for Sweden between the youngest and oldest teachers. The differences were significant for Norwegian ($F = 7.81$, d.f. $= 3$, $p < 0.001$) and Swedish teachers ($F = 23.32$, d.f. $= 3$, $p < 0.001$). The size of the differences was medium for Norwegian teachers ($\eta^2 = 0.09$, CI $= 0.03, 0.16$) and could be accepted. The differences were large for Swedish teachers ($\eta^2 = 0.18$. CI $= 0.10, 0.24$) and could also be accepted.

For newspaper reading, we found a significant difference between age groups for both Norwegian ($F = 5.92$, d.f. $= 3$, $p < 0.001$) and Swedish teachers ($F = 14.04$, d.f. $= 3$, $p < 0.001$). The difference was medium for both Norwegian ($\eta^2 = 0.071$, CI $= 0.01, 0.13$) and Swedish ($\eta^2 = 0.11$, CI $= 0.05, 0.17$) teachers. For nonfiction reading, the differences were also significant for Nor-

TABLE 4. Mean Reading by Age Group

Age group	Read newspapers	Read nonfiction	Read fiction	Read digital	Reading index
		Norway			
18–25	4.22	2.89	3.89	6.67	52.38
26–35	5.33	4.93	4.26	6.43	69.16
36–55	5.47	4.99	4.19	5.93	69.74
46–68	6.33	5.77	4.23	5.1	77.78
Total	5.57	5.06	4.20	5.91	70.61
		Sweden			
18–25	3.68	3.47	2.67	5.79	46.03
26–35	4.52	4.69	3.58	6.05	61.51
36–55	5.36	5.39	4.89	5.73	74.43
46–68	6.13	5.77	4.86	5.02	79.98
Total	5.30	5.25	4.52	5.61	71.93

TABLE 5. OLS Regression for Reading Index on Teacher Capital Variables; Ordered Logistic Regression for Reading Index on Teacher Capital Variables

Dependent variable	Norway OLS	Sweden OLS	Norway Logit	Sweden Logit
	b/se Reading index	b/se Reading index	b/se Digital reading	b/se Digital reading
Teacher social capital				
Talk principle (z-score)	1.053	0.949	−0.040	0.085
	(1.827)	(0.987)	(0.200)	(0.107)
Talk colleague (z-score)	2.661	4.347***	0.318	−0.022
	(1.590)	(1.189)	(0.171)	(0.111)
Teacher human capital				
Teaching years (centered)	−0.126	0.007	−0.008	0.008
	(0.179)	(0.136)	(0.022)	(0.016)
Age (centered)	0.548**	0.704***	−0.045*	−0.033*
	(0.166)	(0.143)	(0.022)	(0.015)
Special education (Yes)	6.579	3.933	0.454	−0.440
	(3.798)	(2.807)	(0.529)	(0.318)
Control				
Sex (Male)	−7.827***	−3.287	0.511	0.350
	(2.305)	(2.661)	(0.297)	(0.265)
School dummies (not shown)	YES	YES	NO	NO
Constant	71.781***	72.152***		
	(1.448)	(1.221)		
Cut point 1				
			−4.003***	−3.743***

(*Continued on next page*)

TABLE 5. OLS Regression for Reading Index on Teacher Capital Variables; Ordered Logistic Regression for Reading Index on Teacher Capital Variables *(Continued)*

Dependent variable	Norway OLS	Sweden OLS	Norway Logit	Sweden Logit			
			(0.519)	(0.369)			
Cut point 2							
			−2.943***	−3.015***			
			(0.330)	(0.271)			
Cut point 3							
			−2.219***	−2.003***			
			(0.256)	(0.189)			
Cut point 4							
			−1.568***	−1.192***			
			(0.213)	(0.155)			
Cut point 5							
			−0.780***	−0.616***			
			(0.184)	(0.143)			
Cut point 6							
			0.220	0.033			
			(0.177)	(0.139)			
Robust standard errors	YES	YES	NO	NO			
R^2	0.204	0.297					
	#1	#2	#3	#4	#5	#6	#7
Sweden R	−0.22	−0.23	−0.23	−0.23	−0.23	−0.19	0.23
Norway R	−0.18	−0.19	−0.20	−0.22	−0.22	−0.16	0.22

Note. The standard errors in parenthesis are robust for OLS. The model adjusts for school with dummy variables. *sig 5%, **sig 1%, ***sig 0.1%.

wegian ($F = 7.36$, d.f. $= 3$, $p < 0.001$) and Swedish ($F = 10.89$, d.f. $= 3$, $p < 0.001$) teachers. Again, the difference was medium for both Norwegian ($\eta^2 = 0.09$, CI $= 0.02, 0.15$) and Swedish ($\eta^2 = 0.09$, CI $= 0.04, 0.15$) teachers. Fiction reading was only significant for Swedish teachers ($F = 17.83$, d.f. $= 3$, $p < 0.001$), with a large effect size ($\eta^2 = 0.14$, CI $= 0.07, 0.20$), which could be accepted as the confidence interval did not overlap with zero. Finally, we can compute similar statistics for the difference in mean across age groups for digital reading. There seems to be a slight difference ($\eta^2 = 0.079$; CI $= 019, 144$) in digital reading. The difference is statistically significant ($F = 6.61$, d.f. $= 3$, $p < 0.001$). In summary, the tests support the idea of age differences (i.e., human capital).

Now we turn to the OLS regression model in Table 5. This model corresponds to our third and fourth research questions: "To what extent does Swedish and Norwegian teachers' social capital (collegial talk, principal talk) predict their reading habits?" and "To what extent does Swedish and Norwegian teachers' human capital (age, education, work years) predict their reading habits?"

The regression model uses robust standard errors and dummies for all the schools in the sample (10 for Norway and 14 for Sweden). The dummies are to absorb potential school effects, but at the cost of lowering the degrees of freedom. Overall, the Norwegian model explains 20% of the variance and, hence, is small in size. The Swedish model explains 30% and, hence, is small to medium in size.

When all predictors are at their expected value, the expected mean of reading habits for Norwegian and Swedish teachers is 72 points in both countries. Again, the differences between Norwegian and Swedish teachers seem to be negligible, so the differences within the teacher occupation seem more interesting. First, we find differences in teachers' social capital. Talking with colleagues about teaching materials has a significant effect in Sweden, but not in Norway. The expected value for one increase in the standard deviation (or 1.4 points) of talking with colleagues is expected to increase reading habits by 4 points when all other predictors are at their expected values. However, discussing teaching materials with the principal is not significant in either country.

Second, being male was expected to decrease reading habits by roughly 8 points. This difference was significant for Norwegian teachers, but not for Swedish teachers. Thus, Norwegian male teachers were less prone to read during their leisure time.

However, we also find similarities within the Norwegian and Swedish teachers with regards to teachers' human capital. Reading habits increase linearly with age in both countries. For example, an average increase in age among Swedish teachers was associated with 0.75-point increase in reading habits. Similar numbers were found in Norway. By contrast, the magnitude of teaching years seems close to zero. The ratio of the standard errors to the coefficient is large. In other words, teaching experience did not seem to make a statistical difference.

Finally, the role of formal human capital is difficult to evaluate. When comparing special educator to regular teachers, holding a special education degree seems to make close to a 7-point difference in Sweden and a 4-point difference in Norway, on average. However, the large standard errors indicate a lack of precision and are statistically not significant.

In the next step, we report the logistic regression. As discussed above, the mode is the same but without the fixed effects. The model tells us the same story as in the OLS concerning teachers' human capital. However, there is a twist to the human capital story. Age differences work in the opposite direction. On average, one additional year of age is associated with a decrease in the likelihood of digital reading after adjusting for other variables. The other coefficients are not statistically significant, although these predictors may still be educationally significant. We compute the correlation (R) between fitted values and the outcome for both models, which yields a weak-to-moderate magnitude around 0.2, but for the purpose of our study we focus on age by plotting the predicted probabilities.

In Figure 2, we refitted the model breaking age down into groups to ease interpretation and compute the predicted probabilities for Sweden and Norway. The pattern is striking. Age differences matter the most in responding to digital reading at a frequency equal to very often (= 7) in both countries. For example, the predicted probability for young teachers to read digital texts very often is 0.61, on average, after adjusting for other variables. In comparison, the corresponding number

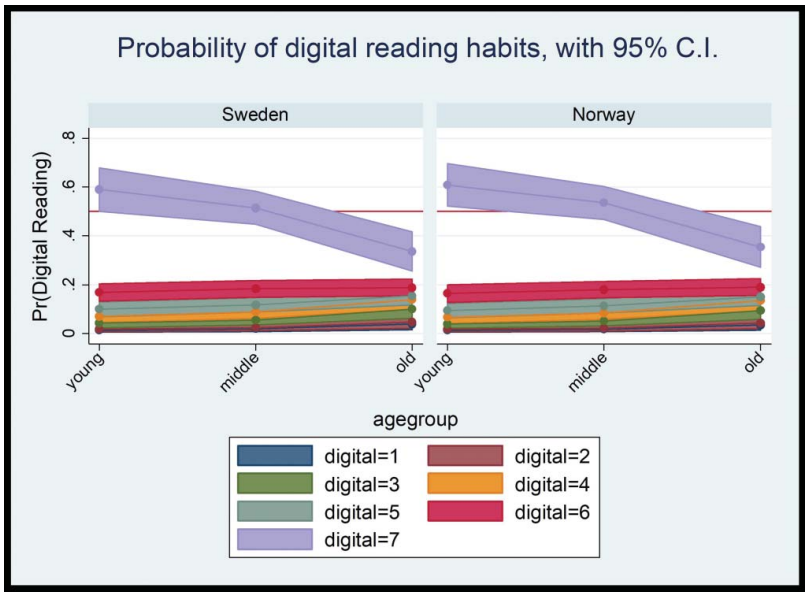

FIGURE 2. Predicted probabilities with 95% confidence intervals. Reference line at 0.50.

for old teachers is 0.35. In other words, we find an average difference of 0.26. Alternatively we could say that, on average, young Norwegian teachers are close to twice (1.7) as likely to respond very often as old Norwegian teachers. The figures for Swedish teachers are strikingly similar. In other words, young teachers in our sample may read less nonfiction (expository texts) on average.

The following section will contain the conclusions of the study, discussions of directions for future research, a summary of our main findings, and the provision of policy guidance.

Discussion and Conclusion

In this study, we wanted to describe how teachers' human and social capital support their professional development as measured by reading habits. Our research questions were:

1. To what extent do Swedish and Norwegian teachers differ in their reading habits during leisure time?

In general, there is no statistically significant difference between Swedish and Norwegian teachers' mean reading habits. However, it is a difference between the two countries regarding fiction reading, meaning that Swedish teachers read more fiction than their Norwegian colleagues. We have no explanation for this. Consequently, the finding calls for future research.

2. To what extent do young and old Swedish and Norwegian teachers differ in their reading habits during leisure time?

We found that old teachers read more newspapers, nonfiction, and fiction than younger teachers in both Norway and Sweden. The results are in line with what Berg and Chyung (2008) found for professional groups other than teachers.

However, young Norwegian and Swedish teachers read more digital texts. Accordingly, young teachers seem to make up for their lower reading of other texts by consuming more digital ones.

3. To what extent does Swedish and Norwegian teachers' social capital (collegial talk, principal talk) predict their reading habits during leisure time?

We found that talking to the principal had no association with the teachers' reading habits in either country. However, teachers' talking with colleagues only seems to matter for Swedish teachers' reading habits.

Norwegian principals actually talk more with their teachers than Swedish principals. One explanation may be that the Swedish teachers worked in medium- to large-sized schools while the Norwegian teachers worked in small- to medium-sized schools. Consequently, it is much easier to talk to a principal if you work in a small school. However, this talk does not affect the teachers' reading habits. In both Sweden and Norway, national initiatives have been launched in order to strengthen the position of reading and writing literacy among young people. Some principals would be interested in knowing about the teachers' leisure-time reading as an aspect of professional development in order to meet the needs of the diverse student groups. A problem is that

principals are pressed for time. They need their scores to adhere to these increasing demands. Time for talk is often extremely limited, so they have to use their time efficiently. It is likely that there will be no time left for discussing teachers' leisure-time reading.

4. To what extent does Swedish and Norwegian teachers' human capital (based on their age, education, and work years) predict their reading habits during leisure time?

One finding is that age matters. Leisure-time reading increases linearly with age in both Sweden and Norway. One possible explanation could be that young teachers spend more time planning and grading. Moreover, they probably have small children. Consequently, they will not have as much time left for reading fiction, nonfiction, and newspapers (Bele, 2011; Caspi & Roberts, 2001; Maskit, 2011). On the contrary, older teachers have more time left, due to their long experience as teachers, and have grown-up children. Consequently, they have more time left for reading fiction, nonfiction, and newspapers. The results are in line with the findings reported by Berg and Chyung (2008), Leserundersøkelsen (2016), and Mediebarometern (2017), who found that older persons read more on average than younger ones. On the contrary, our sample did not follow Hargreaves and Fullan's (2013) proposed "U"-shape curve of teacher efficacy during lifespan.

In contrast to previous studies, we found no clear evidence for the role of special education in teachers' reading during their leisure time. However, we do find a strong age association. These findings are clearly different from that of Andreassen (2013). However, the differences may not necessarily be contradictory. We cannot rule out that an association exists in the population. Given the small number of special educators in our samples, detecting small effects becomes increasingly difficult. At the same time there are studies that show the opposite direction of the age association (Berg & Chyung, 2008). Differences in signs of the association are supposedly more troublesome to explain and call for further studies.

Beyond our research questions, sex differences in reading were found in Norway, but not in Sweden. Although this was not originally a research question, we still think it is appropriate

to address this finding since it can be a critical predictor that may be related to sex differences in reading habits that develop over the life course. We know that even during childhood, females read more than boys and that the differences persist over the life course (Leserundersøkelsen, 2016; Mediebarometern, 2017).

Our study indicates that Swedish and Norwegian teachers, on average, read a lot. But when we divide the analysis in age groups we find differences in the type of reading. Older teachers read more newspapers, nonfiction (expository texts), and fiction than younger teachers. However, younger teachers are more prone to read digital texts than older teachers. It is less probable that the young teachers search for research-related issues on the Internet. Our findings are best considered in the light of the following limitation: We did not investigate what digital texts the teachers read.

Future studies should investigate what digital texts teachers read. Another limitation is that we did not include questions about whether the teachers read aloud to their own children/grandchildren during their leisure time. Reading to one's own children/grandchildren would expose them to a variety of materials that might be useful in the classroom.[8] A third limitation is that we did not include decisional capital. Further investigation is also needed to clarify if principals' work load impacts their possibilities to influence teachers' reading habits, such as by developing new measures.[9]

In conclusion, our study advances the current state of research by making the following contributions. First, we provided evidence for an association between teachers' professional capital (human and social) and teachers' reading habits partly holds for both Norway and Sweden. Second, we showed that—even when sampling mostly similar cases, such as Norway and Sweden—there were differences in how forms of capital are associated with teachers' reading habits. Third, we studied teachers' reading habits as an aspect of professional development. Indeed, teachers' reading habits are seriously underinvestigated.

[8]We owe this observation to one of the anonymous reviewers.
[9]We owe this observation to one of the anonymous reviewers.

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