

*Tracing patterns of sloyd teachers' efficacy beliefs at different stages of their professional careers*

## Tracing patterns of sloyd teachers' efficacy beliefs at different stages of their professional careers

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*This study investigates the patterns of teachers' efficacy beliefs at different stages of their professional careers. In order to do that a questionnaire were constructed and distributed to 280 sloyd teachers and pre-service sloyd teachers in Finland and Sweden. An exploratory factor analysis (EFA) of the questionnaire answers gave us the following five factors: instructional skills, classroom management, motivating pupils, assessment competence and establishing routines. We used these five factors to compare means between novice teachers, mid-career and late-career teachers. The group of novice teachers estimated all five factors to be lower than did the mid-career and late-career teachers. Patterns of teachers' efficacy beliefs at different stages showed that novice, mid-career and late-career teachers all estimated their classroom management ability the highest and their ability to assess pupils' competence in sloyd as second highest. The findings indicated that novice teachers, in particular, lacked opportunities to discuss questions such as how to instruct, how to manage the classroom, how to motivate pupils, how to assess pupils' knowledge and how to establish routines in a classroom. The findings also indicated that sloyd teachers' self-rated assessment with respect to instructional skills increases up until the middle stages of their career, before flattening out. Finally we found that sloyd teachers in the latter stages of their career had different beliefs about their ability to perform important teaching activities that help pupils to learn sloyd. Consequently, it appears that sloyd teachers with extensive experience are better prepared for day-to-day teaching practice.*

Keywords: assessment competence, efficacy beliefs, classroom management, professional career, sloyd teachers

### Introduction

Educational research in which teachers evaluate, estimate and assess their own ability to influence key teaching tasks, such as pupil achievement, pupil motivation and classroom management, has been conducted for a long time (Huberman, 1993; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Tschannen-Moran & Woolfolk Hoy, 2001, Tschannen-Moran & Woolfolk Hoy, 2007; Wolters & Daughter, 2007). This sort of research has often assumed that teacher's perceptions of, or reliance on, efficacy is an assessment of their ability to achieve desirable results in relation to pupil engagement and learning, including pupils who might be understood to be difficult to manage (Armor, Conroy-Oseguera, Cox, King, McDonnell, Pascal, Pauly, & Zellman, 1976). Research has also shown that teachers' beliefs about their capacity to affect pupil learning is related to pupil behaviour and motivation (Caprara, Barbara Nelli, Steca & Malone, 2006; Skaalvik & Skaalvik, 2007). Tschannen-Moran, Woolfolk Hoy, & Hoy (1998, p. 238) found that "little evidence exists about how teachers' efficacy beliefs change or solidify across stages of career". Klassen and Chiu (2010) concluded that such a point is still valid and pointed out that this challenges the hypothesis that teachers' self-evaluation of their teaching effectiveness, once established, remains stable over the course of their careers, as argued by Bandura (1997). It therefore seems important to continue to investigate how teachers, in our case sloyd teachers, at different stages of their professional career reason about their effectiveness.

Models of teachers' career are often understood to be attempts to describe the discrete steps of the prototypical development seen as a characteristic of individual teachers (Fessler, 1995). The first models of the different stages were introduced in the early 1970s (Unruth & Turner, 1970; Gregorc, 1973) and then developed during the 1980s (Sikes, Measor, & Woods, 1985; Huberman, 1989). The stages were designed to represent common aspects of the individual teacher's development, for example, in terms of knowledge, skills and goals, as well as the teacher's position in "the school community and the wider profession" (Richter, Kunter, Klusman, Lüdke & Baumert, 2011, p 117). The complexity of the models that are now widely accepted (Huberman, 1989) is intended to make it possible to derive hypotheses about the implications for teachers' professional development. In his model, Huberman divides the teacher's career into (a) novice (N), (b) mid-career (MC), and (c) late-career (LC) with the aim to capture the overall phases of teachers' lives.

According to Huberman's model, the novice teachers' careers are divided into phases. The first phases, called survival and discovery, cover the first three professional years, and the second phase, called stabilization, refers to the fourth to sixth professional year. Huberman argues, as did Veenman (1984) and subsequently Day, Sammons, Stobart, Kingston and Gu (2007), that many teachers describe their first three years as a period during which they felt exhausted and overburdened with work, they also felt they had difficulties with the schedule and the constant process of trial and error. Hancock (2008), in other words, describes there being a risk of attrition during and after these years. The subsequent stabilization means, according to Huberman (1989), that the teachers are established in their profession and begin to deepen their membership of the teaching profession and to develop their instructional skills.

The mid-career teachers, Huberman's third phase, are the seventh to eighteenth occupation years, and can be expressed as (i) experimentation and activism, as well as (ii) re-examination and self-doubt. Huberman (1993) found that teachers in the third phase, mid-career professionals, often considered the result of their instructions and tested new materials and strategies (Fessler & Christensen, 1992; Day, 2002). Huberman also found that these actions occasionally led to greater professional responsibility and promotion to other positions.

This is followed by the fourth phase, in which the teacher has between nineteen and thirty years of teaching experience (late-career). Huberman describes this in two ways: (i) serenity or (ii) conservatism. In the fourth phase, Huberman's model predicts that some teachers will lose part of their commitment and limit their career aspirations while developing a deeper sense of self-acceptance, in contrast to the conservative teachers who will express scepticism about innovation and education policies (Peterson, 1964).

The end of their career when the teacher has more than thirty years of teaching experience is by Huberman (1993) characterized as a phase of reduced professional commitments. Teachers tend to reduce their career aspirations in this phase of their professional life. Huberman also discuss how teachers with extensive experience alter their motivation, often as a result of potential changes (Day, 1999; Hargreaves, 2005). Huberman's model of the five phases of the teaching career has, in some senses, been challenged or expanded, for example, by Day, Sammons, Stobart, Kingston and Gu (2007), in whose model a teacher's professional life has six phases.

### ***Self-perceived teaching effectiveness and professional career***

Klusmann, Kunter, Trautwein, Lüdtke and Baumert (2008) found out how a school's characteristics and contextual factors could affect teachers' dedication. Ross, Cousins and Gadalla (1996) found that support for teaching experience had an impact on teachers' self-assessments in their study of 52

teachers. Ghaith and Yaghi (1997) found, in an even smaller study of 25 teachers, a negative correlation between the number of years in the profession and teachers' self-assessment of their teaching effectiveness. Ozder (2011) found, in a study of 27 novice teachers, that they perceived themselves to use instructional strategies adequately, had quite good beliefs in their ability to manage the classroom, but were less capable of ensuring pupil engagement. Even so, the teacher efficacy beliefs (TEB), as Ozder terms them, of these novice teachers could be considered adequate in teaching, compared to results of Tschannen-Moran & Hoy (2007) and Hoy & Spero (2005).

Klassen and Chiu (2010) discuss the problems of teachers' self-assessments. The first problem relates to the fact that the relationship between self-rated teaching effectiveness and experience need not be linear, which Woolfolk Hoy and Burke Spero (2005) also found. This means that the self-rated assessments of teachers' own effectiveness initially increased and then dropped for teachers who were at the beginning of their career. A second problem, according to Klassen and Chiu, was the tendency to bring together teachers with varying levels of experience in excessively broad clusters, especially for teachers with more than ten years' experience.

Klassen and Chiu examined the hypothesis that teachers' self-rated teaching effectiveness increases up until the middle of their careers, and then declines, as has been previously shown (Kooij, de Lange, Jansen & Dikkers, 2008). Through their study of 1,430 teachers, they concluded that the hypothesis was correct in that the teachers' self-rated teaching effectiveness, in factors relating to (a) teaching strategies, (b) leadership in the classroom and (c) the ability to engage pupils, increased up until the teachers had 23 years' experience. Klassen and Chiu stated that this suggests a non-linear relationship between the three factors (a) teaching strategies, (b) leadership in the classroom and (c) the ability to engage pupils and the number of years in the teaching profession. They then pointed out that it appears likely that, early on in their careers, teachers lay the foundations for the teaching abilities they continue to develop. Klassen and Chiu's results support Huberman's (1989) assumption about teachers' career-related development.

To summarize the above presented research shows that teacher at different stages of their professional lives develop different strategies in relation to contextual factors, colleagues and pupils. It also states that teacher during their professional lives changes meaning that they continue to develop professional abilities as well as change the beliefs.

The reason for us to investigate teacher's efficacy beliefs during at different stages of their professional career was that (a) we have, thus far, only found very few studies on sloyd teachers' self-rated teaching effectiveness, accordingly, (b) found few studies of teachers working with aesthetic school subjects and (c) it appears that even more studies are required in order to provide reasonable explanations about teachers' professional career as stated by Oplatka and Tako (2009) and Richter, Kunter, Klusmann, Lüdtke, and Baumert (2011).

The hypothesis for this study was that novice sloyd teachers assessed their self-efficacy beliefs lower than mid-career and late career sloyd teachers (Huberman, 1993; Veenman, 1984; Day, Sammons, Stobart, Kingston & Gu, 2007).

## **Theory**

Bandura (1997) defines self-efficacy as the belief in one's own ability to organize and affect the data in order to achieve specific goals. In this context teacher efficacy beliefs (TEB) refers to teachers' ability to organize and affect teaching in order to facilitate learning among pupils. TEB differs conceptually and psychometrically from similar structures, such as self-concept, self-esteem and expectations

regarding the outcome, in that the self-efficacy is focused on task-specific components. Hoy and Spero (2005) suggested that TEB contains future-oriented considerations related to teachers' perceptions of their competence rather than their real effectiveness. But regardless of this, it seems worthwhile to study the perceptions of effectiveness. Bandura (1997) emphasized four aspects to support the development of TEB: (a) *mastery experiences* (b) *vicarious experiences* (c) *social persuasion* (d) *psychological factors*. Of these, *mastery experiences* were found to be the most important aspect for obtaining information about teachers' thoughts on TEB. This though it is based on the personal experiences of the ability to perform skills or actions. Efficacy beliefs on an individual level are shaped by the individual's perception of their success or failure, based on a direct experience (Putman, 2012). Bandura (1977) argues that successful *mastery experiences*, such as good order or intelligible assessments, seen from the pupils' perspective, leads to increased performances of expertise, while repeated failures, for example, disrupted lessons or an inability to interact with pupils, reduce the teachers' perceptions of competence (Hoy & Spero, 2005). *Vicarious experiences* are built up from observations of how specific tasks are conducted by others. The experiences of others are thus used as source of information. Such experiences are considered particularly important for the development of future estimates of teaching effectiveness, provided the teachers have limited teaching experience (Labone, 2004). The effect of such experiences depends on matching properties between the model and the observer, especially when teachers conduct activities that they have previously perceived as threatening. Models of successful practice are particularly important in order to understand the consistency between age and/or sex (Bandura, 1997). *Social persuasion* refers to the direct or indirect feedback given by significant others such as tutors, mentors, colleagues, principals and pupils. Bandura (1997) maintains that the effect of *social persuasion* depends on the expertise and credibility of the person whose opinion one is to be influenced by, as well as on the individual interpretation. *Psychological factors* specifically refer to the feeling of relief and the positive emotions expressing confidence and an expectation of future success. The resulting impressions are processed cognitively so that impressions are filtered, weighed together and integrated. The relative weighting the teachers ascribe to their impression of each aspect is, as Henson (2002) pointed out, an issue in need of further study.

### Data collection and analysis

In order to test our hypotheses, whether there were any differences between how sloyd teachers with different levels of teaching experience ( $\leq 5$  years, 6-15 years and  $\geq 16$  years) perceive their knowledge of different teaching processes, a questionnaire was constructed. Construction meant that an existing, and several times used test focusing maths-teachers efficacy beliefs (Charalambos, Philippou & Kyriakides, 2008) was translated and adjusted to sloyd. The questions in the test covered areas such as teaching the subject, handling pupil's behaviour, motivating pupils, assessments and routines in classroom. The test of teacher efficacy beliefs was developed by researchers in sloyd teaching in Finland and Sweden (Samuelsson & Samuelsson, 2011). Some of the questions were slightly changed in relation to the original test of teachers efficacy beliefs in teaching by (Charalambos, Philippou & Kyriakides, 2008). All aspects related to maths were changed to sloyd in order to ensure that the sloyd teachers found each statement reasonable. The results of this survey, which includes data from 280 teachers in two countries, Sweden and Finland, were utilised in this study. The sample cohort encompassed pre-service teachers at the University of Helsinki and Linköping University, as well as sloyd teachers with varying levels of experience who were part of a community of practice (Samuelsson, 2013) organized as web-based network called *textilläroarlistan*.

Table 1. Nationality, novice (N), mid-career (MC) and late-career (LC)

Country	(N)	(MC)	(LC)
Finland	34	8	16
Sweden	63	100	59

Among the pre-service teachers from Finland all 58 were to become technical teachers sloyd teachers. All of them except four answered that they had experience of working as a teacher. Among the pre-service teachers from Sweden were 34 to become textile teacher and 34 to become wood- and metal sloyd teachers, all except one with experience of working as a teacher. In the article the term novice teacher is used when describing efficacy beliefs among teachers with less experience despite if they work in schools or are pre-service teachers. An argument for that is that almost all pre-service teachers had earlier experience of working in school, and lots of them had experience of also working as supply sloyd teachers. Them being pre-service teachers meant that they were part of a teacher training programme in order to be able to work as sloyd teachers.

### Component analysis

We analysed our data, the questionnaire, using an exploratory factor analysis (EFA). The reason for using an exploratory factor analysis, rather than a confirmatory factor analysis (CFA), was that this was the first time the questionnaire was used to measure Finish and Swedish sloyd teachers' efficacy beliefs. We thought, therefore, that it was more appropriate to search for underlying factors, rather than accept *à-priori* structures used to measure the efficacy beliefs of the teachers of other subjects (Gorsuch, 1990; 1997).

The entire questionnaire was composed of about 27 statements about teachers' efficacy in central teaching processes. All items in the questionnaire were presented as statements, to which the teachers had to respond on a nine-point scale (don't agree = 1; totally agree = 9). There is a common procedure when using factors with eigenvalue > 1 in a factor analysis (Thurstone, 1947; Magnusson, 2007). The criterion used to select the number of factors in this study was that they had an eigenvalue > 1.

An entire section of the questionnaire deals with sloyd teachers' efficacy beliefs; this was composed of 27 items in all. Principle component analysis, completed by means of a varimax rotation factor analysis, resulted in five factors (63.6 % of the variance was explained, eigenvalues were 11.24; 2.05; 1.65; 1.21; and 1.02). There are different ways of producing factor names. The usual procedure is that the researcher looks for highest loadings in order to produce the factor name (Magnusson, 2003). This procedure was used in the present study.

Eight items comprise a factor conceptualised as *instructional skills* ( $\alpha = .90$ ) in sloyd. It means that teachers are able to help pupils to learn sloyd; they can discuss, argue and share ideas. Five items could be grouped under the label *classroom management* ( $\alpha = .89$ ). The teacher can, for instance, control disruptive behaviour in class. A third factor was defined as *motivating pupils* ( $\alpha = .84$ ) eight items were related to this factor. This factor involves statements involving skills such as motivating pupils who show little interest in sloyd. Three items could be grouped under a fourth factor *competence assessment* ( $\alpha = .74$ ). This factor involves statements about the extent to which the teacher could use different assessment strategies. The fifth factor was conceptualised as *establishing routines* ( $\alpha = .65$ ). Two items were loaded onto this factor.

Table 2. Items related to different factors of sloyd teachers' teacher efficacy beliefs

Components	Question	Loading
<i>Instructional skills</i>	Adapt teaching to meet pupils' needs	0.733
	Respond to challenging questions	0.704
	Provide challenging tasks for very capable pupils	0.697
	Monitor the level of understanding of an introduced concept	0.663
	Help pupils to appreciate the value of learning sloyd	0.629
	Use alternative explanation techniques	0.621
	Pose good questions	0.479
	Provide help to failing pupils	0.456
<i>Classroom management</i>	Control disruptive behaviour in the classroom	0.824
	Deal with provocative pupils	0.811
	Control difficult pupils	0.788
	Deal with antisocial behaviour in the classroom	0.785
	Guide pupils to follow rules	0.583
<i>Motivating pupils</i>	Motivate pupils who show low interest	0.717
	Enhance pupils' creativity	0.701
	Help pupils with learning problems in your subject	0.663
	Support families who wants to help their children	0.620
	Enhance pupils' beliefs in sloyd	0.617
	Help pupils work collaboratively	0.575
	Help pupils think critically	0.566
	Create a learning environment supporting pupils' needs	0.454
<i>Competence assessment</i>	Use a variety of assessment strategies	0.713
	Communicate achievement	0.694
	Communicate working processes	0.674
<i>Establishing routines</i>	Establish routines to ensure activities run smoothly	0.690
	Communicate your expectations	0.540
	Maintain routines	0.533

### **Data analysis**

The analysis was carried out using the components presented above. In order to test our hypotheses, one-way analyses of variance to compare means related to sloyd teachers' teacher efficacy beliefs were carried out. These analyses made it possible to see whether there were any differences at the factor level between novice teachers (N), teachers with average experience, in middle of their career (MC) and teachers with extensive experience, in the latter stages of their career (LC). In order to investigate where the differences were in the empirical material, an LSD post hoc test was carried out. Post hoc tests are designed for situations where the researcher has already obtained a significant F-test with a factor that consists of three or more means and where supplementary exploration of the differences between means is needed to provide specific evidence that indicates which means are significantly different from each other. Post hoc test were used at the factor level.

The magnitude of mean differences at the factor level was calculated using Cohen's *d* (Cohen, 1988). Cohen's *d* can be interpreted in terms of the percentage of non-overlap in two distributions. An effect

size lower than 0.3 is considered to be small and indicates an overlap of 78.7 %. An effect size of 0.50 is considered to be moderate with 67 % overlap in the distribution of two samples.

### **Ethical considerations**

Pre-service teachers in Finland and Sweden, as well as the sloyd teachers from *textillärarlistan* were informed about research ethics in accordance with national standards. They were given information about the study, about the voluntary nature of their participation and that they had the right to leave the study at any time. They were also informed that their anonymity would be protected and about how the data was to be used.

### **Result**

The findings of the study are organized into two subsections. In the first subsection, we utilize the quantitative data questionnaire and examine whether there are any differences between groups at the factor level. In the second subsection we examine TEB patterns in our groups to determine whether there are any differences between groups with different levels of experiences.

### **Tracing differences at a factor level**

The next step in our analysis was made at the factor level. The means and standard deviations for each of our factors, *instructional skills*, *classroom management*, *motivating pupils*, *assessment competence* and *establishing routines*, are presented in Table 3.

Table 3. Means and standard deviations for TEB factors for sloyd teachers with novice (N), mid-career (MC) and late-career (LC)

TEB factor	<u>N</u>		<u>MC</u>		<u>LC</u>	
	M	SD	M	SD	M	SD
Instructional skills	3.90	0.76	4.45	0.53	4.61	0.53
Classroom management	4.79	0.92	5.26	0.85	5.41	0.69
Motivating pupils	3.95	0.56	4.23	0.67	4.25	0.55
Assessment competence	4.56	0.86	5.06	0.82	5.18	0.66
Establishing routines	3.81	0.64	4.26	0.51	4.23	0.60

To assess differences between the groups, novice, mid-careers and late-careers, a total of five analyses of variance (ANOVA) were performed.

### **Instructional skills**

The first test showed that there were statistically significant differences between groups with respect to instructional skills  $F(2,277) = 32.61, p < .001$ . Post hoc indicated subsequent significant differences between groups. The novice group estimated their instructional skills to be significantly lower than mid-careers and late-careers. There were no differences between mid-careers and late-careers, thus late-careers assessed their instructional skills a little higher than mid-careers.

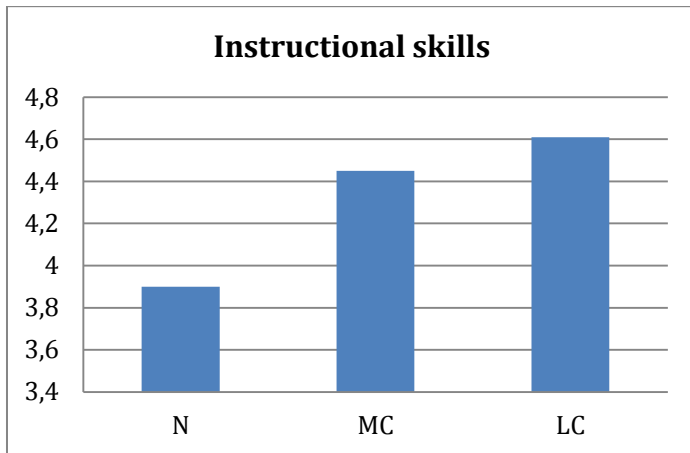


Figure 1. Estimated instructional skills at different stages of teaching career

### **Classroom management**

Our second test concerned teachers estimated classroom management skills. The result of the ANOVA displayed a significant difference between groups with different levels of teaching experience  $F(2,277) = 13.67, p < .001$ . LSD post hoc test showed that mid-career and late-career teachers estimated their classroom management skills to be significantly higher than did novice teachers. Once again there was no difference between mid-careers and late-careers.

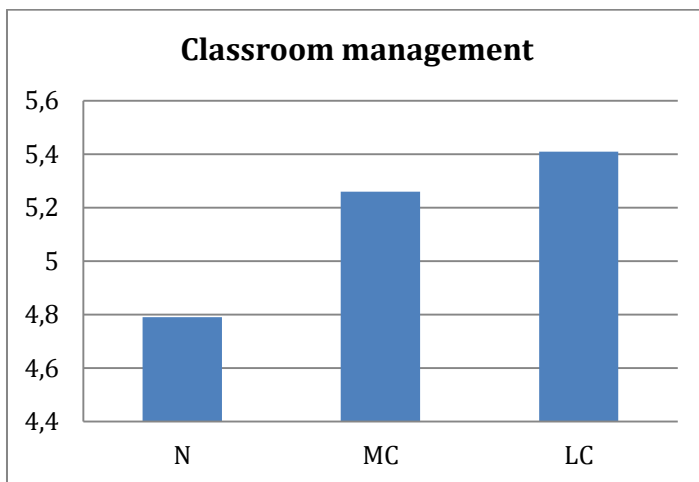


Figure 2. Estimated classroom management skills at different stages of teaching career

### **Motivating pupils**

The third factor we tested featured statements reflecting the teacher's skills in motivating pupils to work with sloyd. There were statistically significant differences between group means as determined by one-way ANOVA  $F(2,277) = 6.97, p < .001$ .



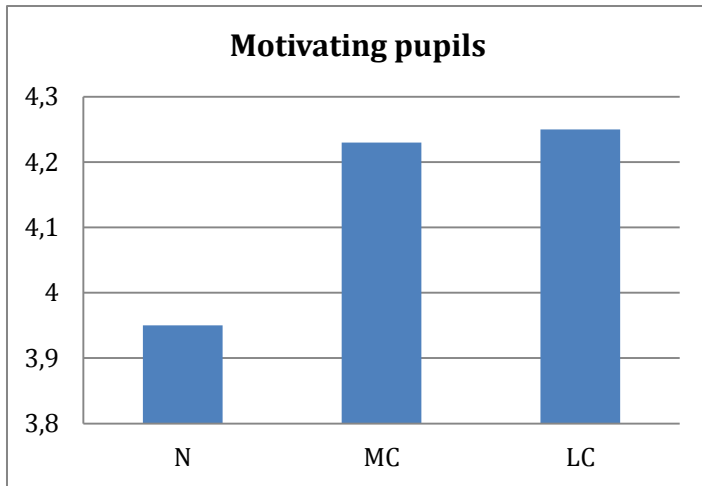


Figure 3. Estimated motivational skills at different stages of teaching career

Post hoc analysis indicated subsequent significant differences between groups. The novice group estimated their ability to motivate pupils significant lower that mid-careers and late-careers. There were no differences between mid-careers and late-careers, thus late-careers assessed their skills a little higher than mid-careers.

#### **Assessment competence**

Our fourth test concerned the teacher' estimated ability to assess pupils' competence in sloyd. The test showed that there were statistically significant differences between groups with respect to assessment competence  $F(2,277) = 15.55, p < .001$ . LSD post hoc test showed that teachers in mid-career and in late-career judged their ability to assess competence to be significantly higher than did novice teachers. There was no difference between mid-careers and late-careers.

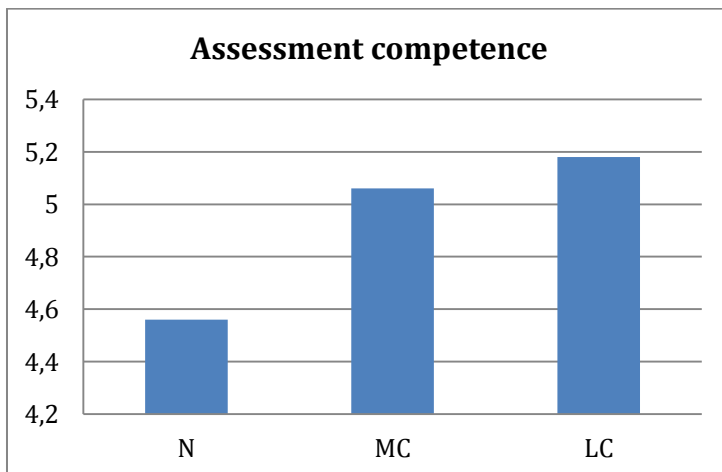


Figure 4. Estimated ability to assess pupils' competence at different stages of teaching career

### Establishing routines

The last factor we tested was teachers estimated ability to establish routines in classrooms. One-way ANOVA tests showed that there were significant differences between groups  $F(2,277) = 18.37, p < .001$ . LSD post hoc test showed that teachers in mid-career and in late-career judged their ability to assess competence to be significantly higher than did novice teachers. There was no difference between mid-careers and late-careers.

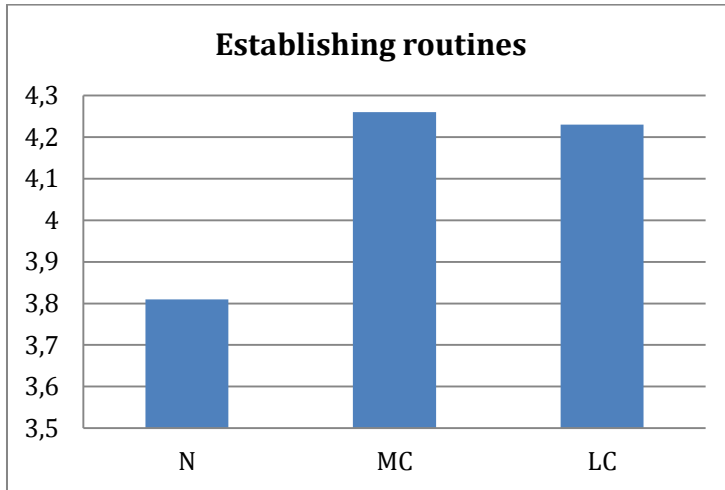


Figure 5. Estimated ability to establish routines at different stages of teaching career

### Patterns

The table below (Table 4) show in what order teachers in different stages in their career estimated their teaching skills.

Table 4. Estimated teaching skills pattern between novice (N), mid-career (MC) and late-career (LC) teachers

	Novice	Mid-career	Late-career
High	Classroom management	Classroom management	Classroom management
	Assessment competence	Assessment competence	Assessment competence
	Motivating pupils	Instructional skills	Instructional skills
	Instructional skills	Establishing routines	Motivating pupils
Low	Establishing routines	Motivating pupils	Establishing routines

All groups estimated their classroom management skills highest, with their ability to assess pupils' competence in sloyd as second highest. The group of novice teachers and teachers in their late-career estimated their ability to establish routines lowest while mid-career teachers gave the lowest rating to their ability to motivate pupils.

### Discussion

Teachers' beliefs about their own capability to affect pupil learning is related to pupil behaviour and motivation (Caprara, Barbara Nelli, Steca & Malone, 2006; Skaalvik & Skaalvik, 2007). Thus, little evidence exists about how teachers' efficacy beliefs change across the different stages of their career

(Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). In this study, we investigated 280 teachers' efficacy beliefs with respect to their capacity to teach sloyd. Based on earlier research we tested the hypotheses that novice sloyd teachers assessed their self-efficacy beliefs lower than mid-career and late career sloyd teachers.

Our factor analysis of the entire questionnaire, inspired by Charalambos, Philippou, & Kyriakides, (2008) gave us five factors (a) instructional skills, (b) classroom management, (c) motivating pupils, (d) competence assessment and (e) establishing routines. Comparing novice, mid-career and late-career teachers, we found that novices assess their capacity lower than do mid-career and late-career teachers. These results are similar to the results of research conducted by Day, Sammons, Stobart, Kingston and Gu (2007). Our hypothesis was in one sense found to be correct.

Bandura (1997) argues that teachers' efficacy beliefs remain stable throughout their careers. Our results show something different. According to our study it seems like novice teachers estimate their ability to instruct, to manage classrooms, to motivate pupils, to assess pupils' knowledge, and to establish routines lower than teachers with more experience. These results are supported by Huberman (1989), Veenman (1984) and also Day, Sammons, Stobart, Kingston and Gu (2007). Huberman (1989) argue that novice teachers are fully occupied by survival and by the discovery of what it actually mean to be a teacher. In fact, Huberman (1993) indicates that this period of a teacher's career is a danger zone. Our results, and those of Huberman (1993), also tell us something about pre-service teachers at teacher training programmes. The training provided by teacher training programmes is not sufficient to enable pre-service teachers to act professionally in their initial years as a professional teacher.

Another explanation for why novice sloyd teachers assess their ability to be low is that contextual factors affect their dedication to instruct (cf. Klusmann, Kunter, Trautwein, Lüdtke and Baumert, 2008). Sloyd teachers are often the only sloyd teacher in the school and thus have few opportunities to discuss issues such as how to instruct, manage the classroom, motivate pupils, assess pupils' knowledge and establish routines in a classroom where the teaching subject is sloyd (cf. Samuelsson & Samuelsson, 2011; Samuelsson, 2013).

Earlier research (Klassen & Chiu, 2010) showed that the relationship between self-rated teaching effectiveness is not linear. Self-assessments initially increase and then drop (cf. Woolfolk Hoy & Burke Spero 2005). Other research shows that there is a negative correlation between number of years in the profession and self-assessed teaching effectiveness (Ghaith & Yaghi, 1997). We have found that the teachers' self-assessments with respect to instructional skills increase up until their mid-career and then flatten out as their careers progress.

We found that novice, mid-career and late-career teachers all assessed their ability to manage classrooms and assess pupils' knowledge highest. Novice teachers, mid-career teachers and late-career teacher then have different patterns for the other factors. For example, novice teachers assess their ability to motivate as the third highest skill, while mid-career teachers assess this ability as fifth and last and late-career teachers assess it as number four. One explanation for this could be that novice teachers are often younger and thereby have more interests in common with their pupils, which may make it easier for them to motivate their pupils. Mid-career teachers' low assessment of this factor could be interpreted as an expression of self-doubt (cf. Huberman, 1989).

Novice teachers ranked their ability to instruct in fourth position, while mid-career and late career teachers ranked their instructional skills in third position. This could be interpreted as implying that teachers improve their instructional skills over time and thereby rank their instructional skills higher than their skills to motivate and establish routines. Having worked as a teacher for some time also

gives mid-career and late-career teachers plenty of feedback about the importance of good instruction, which may be one explanation why they rank this factor higher than novice teachers do (cf. Fessler & Christensen, 1992; Huberman, 1993; Day, 2002).

Novice teachers rank their ability to establish routines lowest, as did late-career teachers. One interpretation is that it is difficult to establish routines at the beginning of their careers. Novice teachers maybe not fully appreciate the importance of establishing routines. Late-career teachers will have learned the importance of establishing routines, but, due to the length of time they have spent in schools, this has now faded from their minds. The importance of establishing routines has been routinized. Late-career teachers ranking of establishing routines could be interpreted as a result of their increased professional responsibility (cf. Huberman, 1993).

Our result shows that sloyd teachers with more extensive experience differ from those with less experience when it comes to assessing their self-efficacy. This could, as we discussed above, be interpreted as different beliefs in their ability to perform important teaching activities that help pupils to learn sloyd (cf. Caprara, Barbara Nelli, Steca & Malone, 2006; Skaalvik & Skaalvik, 2007). It seems, therefore, that sloyd teachers with extensive experience are better prepared for the day-to-day teaching practice.

### **Limitations**

Our results should be interpreted in light of several limitations. One limitation is that this study is not longitudinal. We have not been able to follow all 280 sloyd teachers, due to the development of their teaching careers. However, we do have a quite large group of teachers who participated in our study, which is a strategy that has been used by several researchers (cf. Ross, Cousins & Gadalla, 1996; Ghaith & Yaghi, 1997; Ozder, 2011). Another limitation of our study is in how we made the cluster of novice, mid-career and late-career teachers (cf. Klassen & Chiu, 2010). We have not found any consensus with respect to cluster size; it seems to vary a lot (cf. Unruth & Turner, 1970; Gregorc, 1973; Sikes, Measor and Woods, 1985; Huberman, 1989; Day, Sammons, Stobart, Kingston & Gu, 2007).

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