

A prospective study of changes in burnout and work engagement for beginning teachers

Daniel Hultell
Petter Gustavsson



**Karolinska
Institutet**

Innehållsförteckning

1	Förord.....	3
2	Abstract.....	4
3	Introduction.....	5
3.1	Predictors of burnout and work engagement.....	6
3.2	The present study	7
4	Method and measurement	8
4.1	Procedure and sample	8
4.2	Measurement	8
4.3	Data analysis.....	9
5	Results.....	12
6	Discussion.....	16
6.1	Levels of burnout and work engagement	17
6.2	Limitations and suggestions for future research.....	17
7	Acknowledgements	19
8	References.....	20

1 Förord

LÄST-projektets huvudsakliga syfte är att studera stress och hälsa i övergången mellan högskoleutbildning och arbetsliv. I ett antal rapporter från projektet har fokus riktats mot både utbildningsfrågor och frågor kopplade till yrkeslivet (e.g., Hultell, 2011b; Wännström, Djordjevic, Hultell, & Gustavsson, 2009; Wännström, Hultell, & Gustavsson, 2009). Detta med syftet att få mer kunskap om studietiden, hur studenterna tar sig an sin utbildning, i vilken utsträckning de uppfattar att utbildningen ger en adekvat yrkesförberedelse samt hur de hanterar de första åren i yrkeslivet.

I föreliggande rapport redovisas resultat från tredje och fjärde undersökningsomgången då studenterna förväntades ha påbörjat sin yrkeskarriär som lärare. Rapporten tar upp frågor om lärarstudenternas erfarenheter av utbrändhet och arbetsengagemang under denna period. Dels studeras förändringen av dessa två begrepp och vidare undersöks hur förändringen påverkas av deltagarnas upplevda yrkeskompetens, förväntningar på arbetslivet samt balans mellan arbete och privatliv. Rapporten är skriven på engelska och har samma struktur som en vetenskaplig artikel.

Stockholm den 7 juni 2013

Petter Gustavsson, vetenskaplig ledare för LÄST-projektet

2 Abstract

The aim of the present study was to investigate how first year experiences of employment affect future burnout and work engagement. The sample consisted of 1952 beginning teachers from Sweden. Data were collected during the first and second years of the teachers' employment and were analyzed using SEM analysis. The results showed that unmet expectations, mastery of skills and spillover influenced the development of both burnout and work engagement, but did so mainly indirectly via previous levels of burnout and work engagement. Mastery of skills was negatively related to burnout and unmet expectations and spillover were positively related to burnout, whereas the opposite pattern was found for work engagement. The results also showed that both burnout and work engagement had an impact on the development of the predictors in the model. The findings hence indicate that there are spiral-like developmental patterns for burnout and work engagement and that entering employment might be a starting point for one of these patterns.

Keywords: Burnout, Work engagement, Transition, Longitudinal, the PATH study, Teachers

3 Introduction

The initial period of employment is a time of trial for newcomers and facing the reality of employment can be overwhelming for many. The transition from education to employment has been found to be particularly problematic for beginning teachers, who often have high levels of turnover and burnout (Brandt & Rymenans, 2000; Goddard & Goddard, 2006; Goddard, O'Brien, & Goddard, 2006; Ingersoll & Smith, 2003). Cherniss (1980, 1995) studied employees within the human services professions (including teachers) during their transition from higher education to employment, and came to the conclusion that this period was decisive when it came to the development of work-related attitudes and behaviors; and it was especially critical for the development of burnout.

Although there are many definitions of burnout the predominant one is the one suggested by Maslach and colleagues (Maslach, Jackson, & Leiter, 1996; Maslach & Leiter, 1997). Burnout is defined as “a crisis in one’s relationship with work, not necessarily as a crisis in one’s relationship with people at work” (Maslach et al., 1996, p. 20), and consists of three dimensions: Emotional exhaustion (depletion of energy), Depersonalization (detachment from work and colleagues at work) and Reduced personal accomplishment (feelings of inadequacy and inefficacy) (Maslach & Leiter, 1997; Maslach, Schaufeli, & Leiter, 2001). Maslach is one of the pioneers of burnout and the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986; Maslach et al., 1996) is the most frequently used instrument to measure burnout (Schaufeli & Enzmann, 1998). The reduced personal accomplishment dimension has however been found to be problematic and it has the weakest empirical support of the suggested burnout dimensions, and as a consequence a core of burnout has emerged consisting of emotional exhaustion and depersonalization, two dimensions, or dimensions similar in character, that are also included in alternative burnout measures (e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Melamed, Shirom, Toker, Berliner, & Shapira, 2006).

Some ten years ago the research area of burnout was expanded with a broader focus, incorporating a positive contrasting concept to burnout known as work engagement. There are two conceptualizations of work engagement. The first defines work engagement as the direct opposite of burnout, i.e., absence of burnout implies presence of work engagement (Maslach & Leiter, 1997; Maslach et al., 2001). The second, and the predominant conceptualization, defines it as a separate construct which is negatively related to, but not the direct opposite of, burnout consisting of the three dimensions vigor, dedication and absorption (Maslach et al., 2001; Schaufeli & Bakker, 2003). Recent studies however indicate that the construct validity of the absorption dimension is rather poor (Mauno, Kinnunen, & Ruokolainen, 2007; Schaufeli & Bakker, 2004), and it has also been discussed whether it should be viewed as a potential consequence of work engagement (Langelaan, Bakker, van Doornen, & Schaufeli, 2006). Consequently, a core of work engagement has emerged consisting of vigor and dedication, and in many recent studies the absorption dimension is not included (e.g. Langelaan et al., 2006; Prieto, Soria, Martínez, & Schaufeli, 2008; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Although there is a steadily growing body of research on the topic, in reviewing the literature it becomes apparent that there is a lack of studies focusing on the development of work engagement during the process of organizational socialization.

Burnout and work engagement are defined as psychological states but are both assumed to develop over time. Although there are different views of the processes many suggest that the developmental patterns are spiral-like in character (e.g., Cherniss, 1980; Hobfoll, 2001; Hobfoll & Shirom, 2000; Schaufeli & Enzmann, 1998). One of these theories is the conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll & Shirom, 2000) According to the COR theory, individuals strive to obtain and retain resources assessed as valuable to the individual and when resources are threatened this results in stress. The COR theory also suggest that there is a

spiral of loss and a spiral of gain. The spiral of loss stipulates that when resources are lost individuals use other available resources to compensate for these losses until these have eventually been depleted. For the spiral of gain the pattern is the opposite, in that individuals with available resources find it easier to attain more resources and thus experience more motivation and less stress. Accordingly, the development of burnout and work engagement should be characterized by reciprocal effects between the two outcomes and related stressors and resources. Results from longitudinal studies into the development of burnout and work engagement support this notion (e.g., Demerouti, Bakker, & Bulters, 2004; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Innstrand, Langballe, Espnes, Falkum, & Aasland, 2008; Llorens, Schaufeli, Bakker, & Salanova, 2007), indicating that their respective development may be self-sufficient. If indeed this is the case there is a possibility that the initial period of employment is the starting point for one of these spirals. Considering the different outcomes it is of interest to study this more closely in order to better understand how to prevent burnout and promote work engagement.

3.1 Predictors of burnout and work engagement

Considering that experienced strains is likely to be different for beginning teachers compared to more experienced ones it is necessary to identify factors that are of especial importance during the initial period employment. Cherniss (1980) identified two factors of particular importance in the development of burnout for newcomers: a crisis of competence and unmet expectations. The “crisis of competence” refers to feelings of doubt and insecurity regarding personal ability to perform ones job, despite having a formal education. When reviewing literature on stressors experienced by both experienced and beginning teachers it is apparent that many of the stressors are directly related to competencies required being a successful teacher (e.g., classroom management, working with poorly motivated students, assessing students’ work) (Friedman, 2000; Goddard et al., 2006; Kyriacou, 2001; Veenman, 1984). Many of these factors are usually viewed as aspects of teacher self-efficacy (TSE) and common aspects covered in scales assessing TSE are organizing and planning, student engagement, instruction, class-room management. TSE has been found to be related to both burnout and work engagement (e.g., Evers, Tomic, & Brouwers, 2004; Schwarzer & Hallum, 2008; Simbula, Guglielmi, & Schaufeli, 2010; Skaalvik & Skaalvik, 2010). Furthermore, although not restricted to just teachers, in a recent meta-analysis on antecedents of work engagement, Halbesleben (2010) found that self-efficacy was the antecedent that was most strongly related to work engagement. However, although low TSE is likely a strong contributor to the crisis of competence it is important to take into consideration that perceived self-efficacy refers to “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). TSE in other word refers to beliefs about capabilities, these however can be heavily limited by other contextual factors such as insufficient school resources, being forced to take jobs not matching ones educational profile in regards to teaching subject and/or age of students. A better indicator would perhaps therefore be an assessment of satisfaction with ones performance since this likely will include feelings of TSE while also incorporating contextual factors. The second crucial factor identified by Cherniss (1980) was unmet expectations, referring to a discrepancy between ones expectations and actual conditions of employment. Newcomers whose expectations of employment are not met often experience a reality shock (e.g., Duchscher, 2009; Friedman, 2000; Kelchtermans & Ballet, 2002; Kramer, 1974), and due to inexperience it seems likely that expectations have a greater influence during the early stages of work life, as suggested by Kramer (1974). Being exposed to this reality shock or not having one’s expectations met have been identified as factors contributing to the development of burnout, and there is meta-analytic support for its positive relationship with burnout (Lee & Ashforth, 1996). In a recent study on the transition from education to employment for beginning teachers it was found that unmet expectations and ability to perform work tasks in

a satisfactory way were of particular importance when predicting both burnout and work engagement (Hultell & Gustavsson, 2011). These findings thus support previous findings on the significance of the reality shock and the crisis of competence in relation to burnout, and also show that they are strongly related to work engagement during the initial period of employment. Furthermore, a third factor identified by Hultell and Gustavsson (2011) that was of great significance in relation to both burnout and work engagement for beginning teachers was negative spillover from work to family. Although burnout and work engagement are viewed as work-related constructs, there are numerous of studies showing that the balance between work and private life are of significance (e.g., Byron, 2005; Gali Cinamon & Rich, 2010; Innstrand et al., 2008; U. Kinnunen & Mauno, 1998). It has been found that negative spillover between work and private life are associated with higher levels of burnout (Gali Cinamon & Rich, 2010; Innstrand et al., 2008; U. Kinnunen, Feldt, Geurts, & Pulkkinen, 2006) and lower levels of work engagement (Gali Cinamon & Rich, 2010; Mauno et al., 2007; Seppälä et al., 2009). It has also been found that there are reciprocal effects between negative spillover and well-being at work (Demerouti et al., 2004; Innstrand et al., 2008), indicating that there is a risk for developing a negative spiral resulting in strain at work and at home. It thus seems as if the interaction between work and private life are of significance when it comes to work-related well-being. Based on these previous findings first year experiences of feelings of competence, unmet expectations, and spillover were included as prospective predictors of future burnout and work engagement in the present study.

3.2 The present study

Although it is apparent that many experience the initial period of employment as turbulent it is likely that after a period of time the newcomers will overcome the initial threshold associated with entering employment and that their work situation will become more stable and less unpredictable. The question is how their experiences during the transition period will affect the development of burnout and work engagement during the following period of time. In order to aid understanding of the development of burnout and work engagement during this period, this topic needs to be studied more closely.

It has been suggested that the developmental patterns of burnout and work engagement are spiral-like in character (e.g., Hobfoll & Shirom, 2000; Schaufeli & Enzmann, 1998), a negative spiral resulting in burnout and a positive spiral resulting in work engagement. If this is indeed the case, there is a risk that the experiences during the transition from higher education in to employment for beginning teachers will have a significant impact on the future development of burnout and work engagement. This is, of course, of great importance for organizations considering the difference between the two outcomes, burnout being undesirable and associated with negative consequences (e.g., Ahola & Hakanen, 2007; Ahola et al., 2008; Hakanen, Schaufeli, & Ahola, 2008; Lee & Ashforth, 1996), whereas work engagement is desirable and associated with positive consequences (e.g., De Lange, De Witte, & Notelaers, 2008; Hakanen, Schaufeli, et al., 2008; Schaufeli, Taris, & van Rhenen, 2008). Although this assumption appears to be fairly logical, this has not yet been thoroughly studied.

The purpose of the present study was to study the longitudinal relationships of unmet expectations, feelings of competence, and spillover from work to family with burnout and work engagement for beginning teachers. Three types of relationships were of interest, (1) the effect of first year experiences of unmet expectations, mastery of skills, and spillover on changes in burnout and work engagement, (2) the effect of burnout and work engagement during the first year of employment on changes in unmet expectations, mastery of skills, and spillover, and (3) reciprocal effects between burnout and work engagement and unmet expectations, mastery of skills, and spillover (i.e., a spiral of gain or a spiral of loss).

4 Method and measurement

4.1 Procedure and sample

The data used in the present study originated from a study called the Prospective Analysis of Teachers' Health (PATH). The PATH study is a longitudinal project studying teachers' transition from higher education to employment and data are collected using questionnaires. The sampling frame of the PATH study consisted of two subgroups. The first group consisted of student teachers who studied to become preschool teachers or teachers for students between ages 7-13, and the second group consisted of student teachers who studied to become teachers for students between ages 14-18. Criteria for inclusion in the PATH study were that the student teachers were registered at semester five of seven (future preschool teachers or teachers for students between ages 7 - 13) or registered at semester seven of nine (future teachers for students between ages 14-18), and that they attended a school with more than 80 students registered at the defined program the term prior to the first data collection. A total of 4076 were contacted for participation in the study whereof 2853 (70%) consented participation and came to constitute the cohort of the PATH study. Two data collections have been performed during the final period of education. The unique sample of the PATH study, including teachers from the whole of Sweden, presents an opportunity to study the topic of the transition from higher education to employment on a national level.

The data included in the present paper were collected after the teachers had graduated and entered employment. The design was longitudinal, including two waves of measurement. The first wave of measurement (T1) took place when the teachers had been working for approximately one year (spring 2008) and the second wave of measurement (T2) took place one year later (spring 2009). The teachers had thus been working for approximately two years. A total of 55 participants had left the study since it started, and of the remaining 2798 teachers that were included at T1 there were 1752 (63%) who responded. Twenty-two participants left the study before T2, resulting in a sample size of 2776 of whom 1678 (60%) responded. An attrition analysis was performed in order to see if there was any systematic dropout between the T1 and T2. A logistic regression analysis was performed with attrition as the outcome variable. The predictors included in the analysis were sex, age, immigrant background, age of students, and burnout during the first wave of measurement. The results showed that there was systematic dropout accounting for 2.7% of the explained variance in attrition. Four of the five predictors significantly predicted dropout: males ($OR = 1.83; p < .01$), younger participants ($OR = .97; p < .01$), persons with an immigrant background ($OR = 1.48; p < .05$), and participants working with older students ($OR = 1.47; p < .05$) were more likely to leave the study.

In the present study a full information maximum likelihood (FIML) that can include missing data was used as method of estimation, meaning that it was not necessary for the teachers to have participated in both waves. Criteria for inclusion was therefore that the teachers had participated in one or two of the waves of measurement (i.e., T1 and/or T2), that they had responded to at least 80% of the items in the included scales, and that they had responded to at least one of the scales included in the study. A total of 1953 met the criteria for inclusion and thus constituted the sample of the study. Although this might seem strange at first, considering the number of respondents at T1 and T2, the size of the sample is due to the fact that there were teachers who participated in the first data collection (T1) but not in the second (T2) and vice versa. Of the 1953 teachers 85% were female and the mean age was 32.5 years ($SD_{age} = 7.2$).

4.2 Measurement

The two outcome variables in the study, burnout and work engagement, were assessed using the Scale of Work Engagement and BurnOut (SWEBO) (Hultell & Gustavsson,

2010). The SWEBO is a quite recently developed instrument measuring the state mood of burnout and work engagement. The SWEBO consists of two scales, one measuring burnout and one measuring work engagement. The burnout scale measures the three dimensions exhaustion, disengagement, and inattentiveness. The work engagement scale measures the two dimensions vigor and dedication. The items were rated using a four-point frequency response format (1 = *Not at all*, 2 = *Some of the time*, 3 = *Most of the time*, 4 = *All of the time*). The psychometric properties of the SWEBO have been evaluated using confirmatory factor analysis (CFA) with satisfactory results regarding reliability and factorial validity for both the burnout subscale and the work engagement subscale. The fit of the burnout subscale met the criteria for satisfactory model fit suggested by Hu and Bentler (1999) ($\chi^2(24) = 138.66$, $SRMR = .051$, $RMSEA = .046$, $CFI = .99$), as did the fit of the work engagement subscale ($\chi^2(8) = 58.78$, $SRMR = .044$, $RMSEA = .053$, $CFI = .99$), and all factor loadings for both subscales were greater than .71 (i.e. accounted for more than half of the explained variance for each item) (Hultell & Gustavsson, 2010).

Three predictors were included in the study (see Table 1). These were unmet expectations, mastery of skills and spillover from work to family. Unmet expectations was used as proxy for reality check, and mastery skills was used as a proxy for the crisis of competence. In addition, to correct for systematic bias the significant predictors of dropout (sex, age, age of students, and immigrant background) were included as auxiliary variables in the model. This is in line with current recommendations of an inclusive analysis strategy including auxiliary variables into the missing data handling procedure making the assumption of missing at random more plausible and can improve the power of the analysis (Collins, Schafer, & Kam, 2001). Descriptive statistics for the included variables and the reliability of the aggregated scales are presented in Table 1. The descriptive statistics and reliability scores presented in Table 1 were computed prior to the analysis in Mplus.

4.3 Data analysis

Three questions were of interest; (1) do unmet expectations, mastery of skills, and spillover during the first year of employment affect changes in burnout and work engagement, (2) do burnout and work engagement during the first year of employment affect changes in unmet expectations, mastery of skills, and spillover, and (3) are there reciprocal effects between burnout and work engagement and unmet expectations, mastery of skills, and spillover (i.e., a spiral of gain or a spiral of loss).

The method of analysis was structural equation modeling (SEM) with latent variables. The measurement models of mastery of skills, unmet expectations, and spillover were all unidimensional models with three indicators each. The measurement model for burnout was a hierarchical model with three first order factors (exhaustion, disengagement, and inattentiveness) with three indicators each, and one second order factor (burnout). The measurement model for work engagement was also a hierarchical model with two first order factors (vigor and dedication) with three indicators each, and one second order factor (work engagement). Since the study design is longitudinal the residuals of each indicator at T1 were allowed to correlate with the residuals of respective indicator at T2. In order to answer the questions of interest, four autoregressive models were tested. The different models tested are normally included when longitudinally studying reciprocal effects (e.g., González-Romá, Schaufeli, Bakker, & Lloret, 2006; M.-L. Kinnunen, Feldt, Kinnunen, & Pulkkinen, 2008; Salanova, Bakker, & Llorens, 2006; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009), and are in accordance with the recommendations of Finkel (1995). In all models unmet expectations, mastery of skills, and spillover loaded on the outcome variable (burnout or work engagement) at each wave of measurement. The first model, *the stability model* (M1_{BO} and M1_{WE}), included temporal stability for the outcome variables and the predictors but did not include any cross-lagged effects. Temporal stabilities were specified as autoregressive effects of the variables at T1 on respective

variables at T2. This stability model was the parent model and was thus mainly of interest for comparison. The second model, *the normal causality model* (M2_{BO} and M2_{WE}), was identical to M1 but included cross-lagged effects of the predictors at T1 on the outcome variable at T2. This model provides an answer to question number 1. The third model, referred to as *the reversed causality model* (M3_{BO} and M3_{WE}), was also identical to M1 but it included cross-lagged effects of the outcome variable on the predictors at T2. This model provides an answer to question number 2. The fourth model, referred to as *the reciprocal model* (M4_{BO} and M4_{WE}), included reciprocal effects between the predictors and the outcome variables and thus included all paths of M2 and M3. This model provides an answer to question number 3.

Table 1
Number of items, sample item, source, descriptive statistics, and reliability scores (Cronbach's alpha) of auxiliary variables and the model variables

Type of variable Variable	N Items	Sample Item	Source	Range	Mean	SD	α
Auxiliary variables							
Sex (1 = female)	1	-	-	0-1	0.85	-	-
Age	1	-	-	24-63	32.51	-	-
Age of students (1 = older)	1	-	-	0-1	0.73	-	-
Immigrant background (1 = yes)	1	-	-	0-1	0.15	-	-
Model variables							
Burnout T1	9	In the past two weeks at work I have felt exhausted.	(Hultell & Gustavsson, 2010)	1-4	1.61	0.53	.91
Burnout T2	9	-		1-4	1.65	.048	.89
Work engagement T1	6	In the past two weeks at work I have felt energetic.	(Hultell & Gustavsson, 2010)	1-4	2.95	0.48	.84
Work engagement T2	6	-		1-4	2.91	0.46	.85
Unmet expectations T1	3	Generally, this job is not what I thought it would be.	(Lait & Wallace, 2002)	1-5	2.32	0.88	.67
Unmet expectations T2	3	-		1-5	1.98	1.02	.92
Mastery of skills T1	3	Are you content with the quality of the work you do?	(Dallner et al., 2000)	1-5	4.06	0.61	.76
Mastery of skills T2	3	-		1-5	4.09	0.57	.75
Spillover T1	3	Problems at work make it hard for me to relax at home.	(Curbow, McDonnell, Spratt, Griffin, & Agnew, 2003)	1-5	2.36	0.98	.85
Spillover T2	3	-		1-5	2.41	1.01	.86

After examining the data regarding normality it was found that the variables deviated from normality and thus the Yuan-Bentler correction for non-normality (Yuan & Bentler, 2000) was applied using a FIML estimation with robust standard errors that can include missing data (MLR). Since the χ^2 is sensitive to sample size additional fit indices were also used to evaluate model fit. These additional fit indices were the root mean-square error approximation of the mean (RMSEA) for evaluating the parsimony of the model, the standardized root mean-square residual (SRMR) for evaluating the absolute fit of the model, and the comparative fit index (CFI) for evaluating the fit of the observed data relative to that of the baseline model. The choice of these additional fit indices was based on the recommendations of Hu and Bentler (1998), due to their sensitivity to model misspecification and sample size. The cutoff values for each fit index was chosen based on recommendations of Hu and Bentler (1999). They recommend that the cutoff value for the RMSEA should be close to or lower than .06, the cutoff value for the SRMR should be close to or lower than .08, and the cutoff value for CFI should be close to or higher than .95. When using MLR as method of estimation the MLR produced χ^2 difference between two nested models is not distributed as χ^2 . It was thus necessary to use the scaled difference in χ^2 s (SDCS) when comparing the respective fit of the nested models (Brown, 2006). After the model with the best fit was identified, indirect effects between the predictors at T1 and the outcome variable at T2 were included in the model. Three specific indirect effects were added for each predictor, the first was via the outcome variable at T1, the second was via the predictor at T2, and the third was via the outcome variable at T1 and the predictor at T2.

Mplus 6 (Muthen & Muthen, 2010) was used to perform the SEM analyses and test the different models. SPSS 18 (SPSS Inc, 2008) was used to perform the reliability analyses and the logistical regression analysis. A p-value less than or equal to .05 was used to judge statistical significance (Glass & Hopkins, 1995).

5 Results

Table 2 presents the fit indices of the competing models predicting burnout and the scaled difference in χ^2 between the models. The first question concerned if unmet expectations, mastery of skills, and spillover during the first year of employment affected changes in burnout (i.e., a test of the normal causality model). The results showed that the normal causality model fit the data well and it had a significantly better fit compared to the stability model. The parameter estimates showed that there were significant effects of each predictor on the development of burnout and thus supported that the predictors had direct effects on the development of burnout. The second question of interest was whether burnout at T1 affected changes in unmet expectations, mastery of skills, and spillover. The reversed causality model met the criteria for satisfactory model fit and had a significantly better fit compared to the stability model and had a lower χ^2 compared to the normal causality model. The parameter estimates showed that high levels of burnout at T1 led to an increase in unmet expectations and spillover at T2 and a decrease in mastery of skills and hence supported that burnout during the first year of employment had an impact on the development of experiences of unmet expectations, mastery of skills, and spillover. The third question concerned if there were reciprocal effects between burnout and unmet expectations, mastery of skills, and spillover (i.e., testing the reciprocal model). The fit indices showed that the reciprocal model had a significantly better fit than the reversed causality model and met the criteria for satisfactory model fit. The reversed causality model was therefore rejected in favor of the reciprocal model. Again, the parameter estimates showed that high levels of burnout at T1 led to an increase in unmet expectations and spillover at T2 and a decrease in mastery of skills. In addition, the parameter estimates also showed that there were negative effects of unmet expectations and spillover at T1 on the development of burnout. These finding might seem odd since it intuitively might be expected that the effects of unmet expectations and spillover would be positive. The parameter estimates are however the effects of the predictors when controlling for the effects of changes in the predictors over time, meaning that individuals with the largest increase in the predictors (i.e. a low value at T1) also had the largest increase in burnout. In the final model 65.2% of the variance in burnout at T2 was explained, the explained variances of all endogenous variables in the model are presented in Figure 1. The significant standardized parameter estimates of the reciprocal model are presented in Figure 1, in order to simplify the presentation the model only includes the estimates between the latent variables.

Table 2

Goodness of fit indices and the scaled $\Delta\chi^2$ for the competing models of burnout, N = 1953.

Model	<i>Df</i>	χ^2	Δdf	$\Delta\chi^2$	<i>CFI</i>	<i>RMSEA (CI 90)</i>	<i>SRMR</i>
M1 _{BO}	557	1797.899	-	-	.950	.034 (.032-.036)	.057
M2 _{BO}	554	1765.838	3	36.316*	.951	.033 (.032-.035)	.056
M3 _{BO}	554	1754.859	3	38.438*	.952	.033 (.032-.035)	.051
M4 _{BO}	551	1729.544	3	25.315*	.952	.033 (.031-.035)	.050

*, $p < .01$; *df*, degrees of freedom; *RMSEA*, root mean-square error approximation of the mean; *CI*, confidence interval; *SRMR*, standardized root mean-square residual; *CFI*, comparative fit index.

Furthermore, it was also of interest to study the indirect effects of the predictors at T1 on burnout at T2. The results showed that each predictor at T1 had significant indirect effects on burnout at T2 via burnout at T1, via respective predictor at T2, and via burnout at T1 and respective predictor at T2. Mastery of skills at T1 was negatively related to burnout at T2, whereas unmet expectations and spillover were positively related to burnout at T2.

The indirect effects are presented in Table 3. These findings thus support that the influence of the predictors at T1 on future burnout is mediated by burnout at T1 and the predictors at T2.

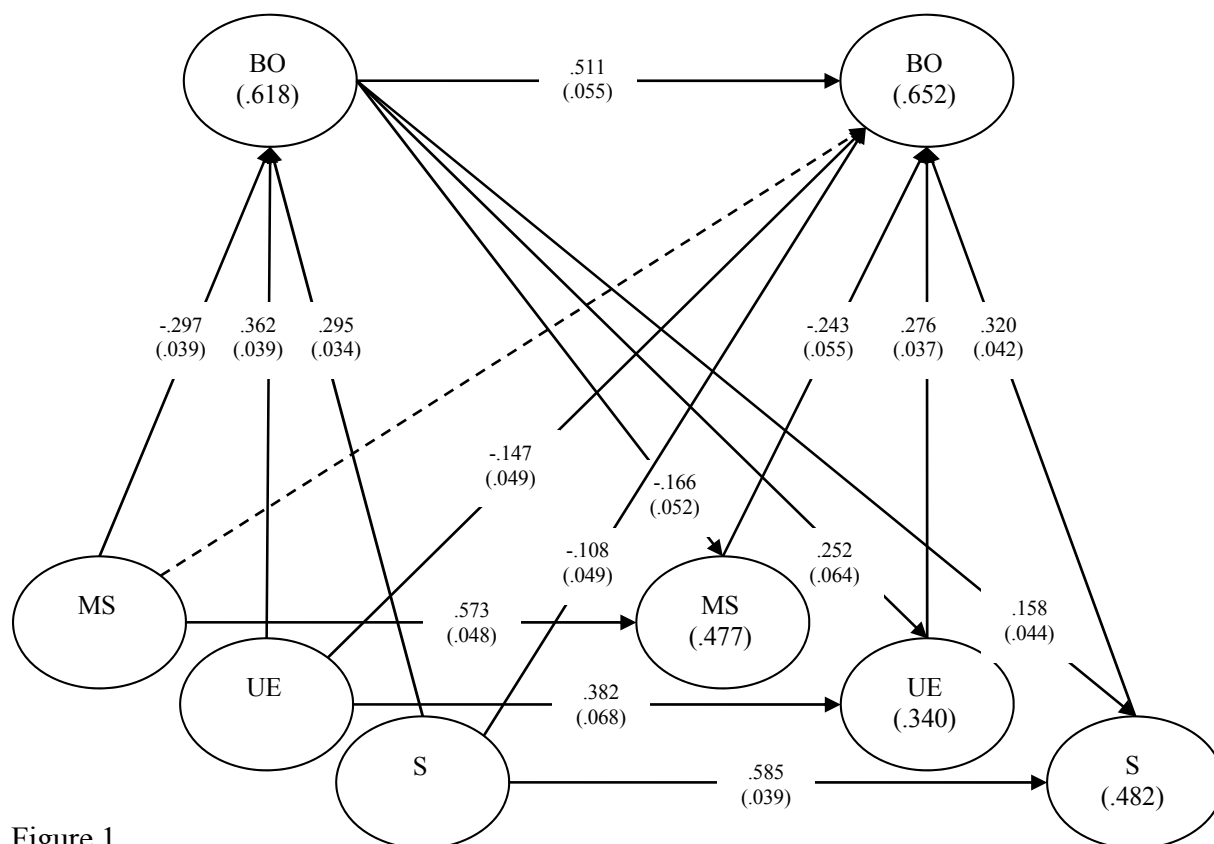


Figure 1

The reciprocal model of burnout, all parameter estimates p-values lower than .05. The dashed lines indicate that the parameter estimates were non-significant. Standard errors of the parameter estimates are presented in the parentheses below each estimate. Explained variance (R²) of the endogenous variables is presented in the parentheses of respective variable.

MS = Mastery of skills, UE = Unmet expectations, S = Spillover

Table 3

Indirect effects of the reciprocal model of burnout, all parameter estimates had p-values lower than .001. Standard errors of the parameter estimates are presented in the parentheses next to each estimate.

	Total indirect (SE)	Via burnout _{T1} (SE)	Via predictor _{T2} (SE)	Via burnout _{T1} and predictor _{T2} (SE)
Mastery of skills	-.303 (.0040)	-.152 (.026)	-.139 (.030)	-.012 (.004)
Unmet expectations	.315 (.041)	.185 (.029)	.105 (.026)	.025 (.006)
Spillover	.353 (.036)	.151 (.023)	.187 (.030)	.015 (.004)

Table 4 presents the fit indices of the competing models predicting work engagement and the scaled difference in χ^2 between the models. The first question of interest was if there were any direct effects of the predictors at T1 on the development of work engagement (i.e., the normal causality model). The results showed that the normal causality model met the criteria for satisfactory model fit and had a significantly better fit compared to the stability model. The parameter estimates showed that all predictors at T1 affected the

development of work engagement. The second question concerned whether there work engagement at T1 affected the development of the predictors (i.e., the reversed causality model). The results showed that the reversed causality model fit the data well and that it fit the data significantly better compared to the stability model. The χ^2 of the model was however higher compared to the normal causality model. The parameter estimates showed that work engagement at T1 had a negative effect on the development of spillover but no significant effects on mastery of skills or unmet expectations. The third question concerned if there were reciprocal effects between work engagement and the predictors (i.e., the reciprocal model). The results showed that the reciprocal model met the criteria for satisfactory model fit and had a significantly better fit compared to the normal causality model. The normal stability model was thus rejected in favor of the reciprocal model. The parameter estimates of the model showed that high levels of work engagement at T1 led to a decrease in spillover. Concerning the effects of the predictors on the development of work engagement it was found that individuals with the largest increase in the mastery of skills (i.e. a low value at T1) had the largest increase in work engagement, whereas individuals with the largest decrease in unmet expectations and spillover (i.e. high values at T1) had the largest decrease in work engagement. In the final model 58.8% of the variance in work engagement at T2 was explained, the explained variances of all endogenous variables in the model are presented in Figure 2. The significant standardized parameter estimates of the reciprocal model are presented in Figure 2, as for the reciprocal model of burnout the model only includes the estimates between the latent variables.

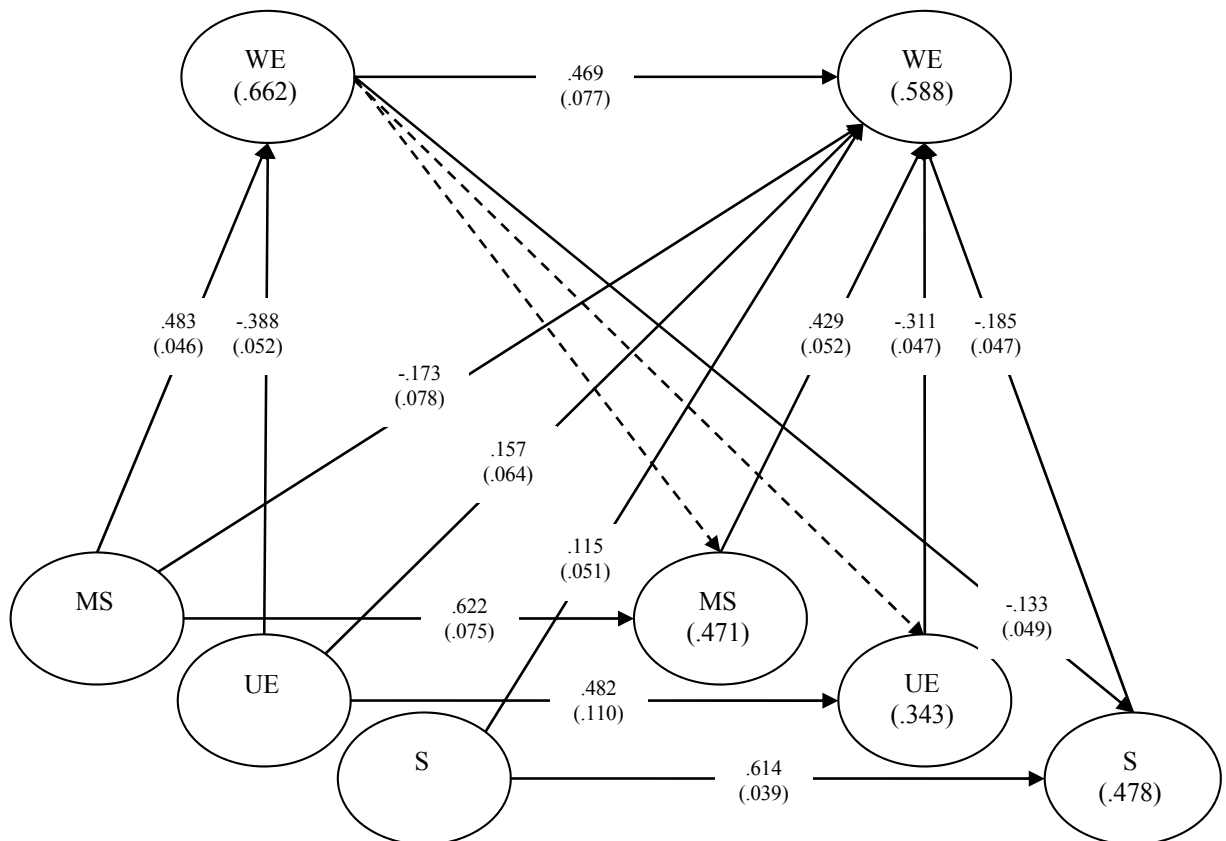


Figure 2
 The reciprocal model of work engagement, all parameter estimates had p-values lower than .05. Standard errors of the parameter estimates are presented in the parentheses below each estimate. Explained variance (R²) of the endogenous variables is presented in the parentheses of respective variable.
 MS = Mastery of skills, UE = Unmet expectations, S = Spillover

Table 4

Goodness of fit indices and the scaled $\Delta\chi^2$ for the competing models of work engagement, N = 1953.

Model	<i>df</i>	χ^2	Δdf	$\Delta\chi^2$	<i>CFI</i>	<i>RMSEA (CI 90)</i>	<i>SRMR</i>
M1 _{WE}	403	1326.711			.952	.029 (.027-.030)	.069
M2 _{WE}	400	1300.367	3	26.344**	.954	.028 (.027-.030)	.069
M3 _{WE}	400	1317.386	0/3	9.555*	.953	.029 (.027-.030)	.066
M4 _{WE}	497	1294.017	3	7.894*	.954	.028 (.027-.030)	.066

*, $p < .05$; **, $p < .01$; *df*, degrees of freedom; *RMSEA*, root mean-square error approximation of the mean; *CI*, confidence interval; *SRMR*, standardized root mean-square residual; *CFI*, comparative fit index.

Furthermore, the results showed that each predictor at T1 indirectly affected future work engagement via work engagement at T1, via respective predictor at T2, and via work engagement at T1 and respective predictor at T2. High levels of unmet expectations and spillover at T1 indirectly affected future work engagement negatively, whereas high levels of mastery of skills at T1 indirectly had a positive impact on future work engagement. The indirect effects are presented in Table 5.

Table 5

Indirect effects of the reversed causality model of work engagement, all parameter estimates had p-values lower than .001. Standard errors of the parameter estimates are presented in the parentheses next to each estimate.

	Total indirect (<i>SE</i>)	Via work engagement _{T1} (<i>SE</i>)	Via predictor _{T2} (<i>SE</i>)	Via work engagement _{T1} and predictor _{T2} (<i>SE</i>)
Mastery of skills	.511 (.060)	.226 (.044)	.267 (.051)	.017 (.017)
Unmet expectations	-.348 (.062)	-.182 (.040)	-.150 (.048)	-.016 (.012)
Spillover	-.145 (.035)	-.030 (.022)	-.114 (.032)	.002 (.001)

6 Discussion

The results of the present study suggest that the development of both burnout and work engagement are best characterized by reciprocal relationships between the outcome variables and the predictors in the model. The development of burnout was positively affected by high levels of unmet expectations and spillover. Furthermore, baseline burnout had a negative impact on the development of mastery of skills and a positive impact on the development of unmet expectations and spillover. Conversely, the development of work engagement was positively affected by high levels of mastery of skills and negatively affected by high levels of unmet expectations and spillover. Moreover, high levels of baseline work engagement lead to a decrease of spillover. The development of burnout thus appears to be characterized by a spiral of loss whereas the development of work engagement is characterized by a spiral gain. The findings are in line with previous research on the development of burnout and work engagement (Demerouti et al., 2004; Xanthopoulou et al., 2009), and in line with the idea of the COR theory. It thus appears as if the development of burnout and work engagement is influenced by early career experiences and that the initial period of employment for many might be the start of a spiral of loss leading towards burnout or a spiral of gain leading towards work engagement.

The results showed that teachers who experienced that there was a smaller discrepancy between expectations about their work and reality and felt that they had competence to perform their job in a satisfactory manner were more likely to be engaged in their work, whereas those who experienced a reality shock and lacked sufficient competence had an increased risk of developing burnout. These results support previous research findings on the transition from education in to employment (e.g., Cherniss, 1980; Friedman, 2000; Hultell & Gustavsson, 2011), and strengthen the view that the ability to deal with the initial reality shock and the crisis of competence is a central aspect of the development of burnout and work engagement in the early stages of the career. Furthermore, levels of spillover between private life and employment were of importance for the development of work engagement, but even more so for the development burnout. In relation to the COR theory the results of the present study could be an indication that individuals with an overload of job demands eventually use their private resources (e.g., time for recovery and spare time activities) in an attempt to cope, and when the resources no longer suffice it is likely that burnout starts to develop. On the other hand, individuals who have a sufficient amount of job resources available to them will not have to tap into their supply of private resources, giving them more time for recovery. Moreover, reciprocal effects have also been found for spillover between private life and employment (Demerouti et al., 2004; Xanthopoulou et al., 2009), further supporting the notion that aspects of private life need to be included in these positive and negative spirals. Taken together, these results highlight the importance of the balance between employment and private life in relation to burnout and work engagement.

Previous research has found that future burnout and work engagement are both stable over time, best predicted by their respective previous levels, and that few factors affect changes in burnout and work engagement (e.g., Hakanen, Perhoniemi, et al., 2008; Hultell, 2011a; Mauno et al., 2007; Prieto et al., 2008; Schaufeli & Enzmann, 1998). It is probable that the reason for these findings is that the influence of the predictors on changes in burnout or work engagement was mainly mediated by previous burnout or work engagement. Compared to previous studies found when reviewing the literature, indirect effects of the predictors via the outcome variable were presented in the present study and thus allowed for the testing of mediation. The results showed that all predictors had significant indirect effects on both future burnout and work engagement via respective outcome variable at T1, via themselves at T2, and via the outcome variable at T1 and the predictor at T2. Hence, despite that there was no significant direct effect of mastery of skills on the development of burnout

it was evident that it indirectly affected future burnout. These findings further support that first year experiences were of significance in relation to the development of work-related well-being and strengthen the notion of spiral-like developmental patterns.

6.1 Levels of burnout and work engagement

When examining the levels of burnout and work engagement it appears that the beginning teachers have rather low levels of burnout and are engaged in their work. The means at both T1 and T2 indicate that the beginning teachers rated that they on average experienced symptoms of burnout some of the time and that they were engaged in their work most of the time. This is of course something positive and was not in line with previous findings on high levels of burnout among beginning teachers (Gavish & Friedman, 2010; Goddard & Goddard, 2006; Goddard et al., 2006). It should however be noted the MBI was used to measure burnout in these studies and that direct comparisons of the results therefore should be interpreted with some caution. Previous research has found that both burnout and work engagement are stable constructs, and the magnitude of their stability scores are similar to those found for psychological traits (e.g., Hakanen, Schaufeli, et al., 2008; Hultell, 2011a; Schaufeli, Bakker, & Van Rhenen, 2009; Schaufeli & Enzmann, 1998; Seppälä et al., 2009). Similar results were found for both burnout (.51) and work engagement (.47) in the present study. High stability scores on the other hand do not necessarily imply that changes do not occur but rather reflect the stability of the rank order of individuals over time. Wald tests of equal parameter constraints showed that there was a slight increase in burnout, $\chi^2(1) 3.94, p < .05$, and a decrease in work engagement, $\chi^2(1) 5.79, p < .05$, between the waves of measurement. The change in burnout was .07 (Cohen's d) and .09 (Cohen's d) for work engagement which are considered to be small effect sizes (Cohen, 1988), indicating that the mean levels were stable over time. The results of the present study thus show that burnout and work engagement are stable both regarding rank order and levels.

6.2 Limitations and suggestions for future research

As with most longitudinal studies there will be participants that leave the study and systematic dropout might bias the results and limit the generalizability of the findings. The results of the attrition analysis showed that younger persons, males, teachers working with older children, and persons with an immigrant background were more likely to leave the study. However, only 2.7% of the variance in attrition was explained, indicating that it is not likely that the results were heavily biased. The variables that were significantly related to dropout was also included as auxiliary variables in the path analyses which makes the missing at random assumption more plausible and can improve the power of the analysis (Collins et al., 2001) and therefore further reduces the biasing of the results.

The reliability scores for the scales included in the study ranged from .67 to .92. Although the reliability scores for most of the scales included in the study exceeded the recommended .70 (Streiner, 2003), the reliability of unmet expectations at T1 did not meet this criterion for satisfactory internal consistency. This can of course be seen as a limitation of the study. However, considering that the parameter estimates in the model were estimated free from measurement error this did not affect the strength of the relationships of unmet expectations at T1 and T2 with the other variables in the study. Moreover, it might seem strange that the variable with the lowest reliability at T1 was also the variable with the highest reliability at T2. In the version used at T1 the first item was worded positively (experiences been more positive than expected) whereas the remaining two was worded negatively. In the version used at T2 first item was revised and was worded negatively (experiences been more negative than expected) which is likely the reason for the increase in reliability.

The reciprocal model accounted for more than half of the variance in both burnout and work engagement, supporting that the predictors included in the model was indeed of relevance. However, there still is a substantial amount of variance that was not accounted for, indicating that there are predictors not included in the models that would help explain the development of burnout and work engagement. In the present study only one resource variable was included it is possible that by including more resource variables the amount of explained variance would increase. In a recent meta-analysis by Halbesleben (2010) on the relationships between work engagement and resources it was found that, in addition to self-efficacy, the two resources that had the strongest relationship with work engagement were feedback and autonomy. Including these variables in future studies perhaps would increase the amount of explained variance in work engagement. Furthermore, in a recent meta-analysis on the relation between personality traits of the five-factor model and burnout it was found that personality accounted for a substantial amount of variance burnout (Swider & Zimmerman, 2010). Including personality traits in future studies thus might help explain additional variance in burnout, and hopefully also in work engagement.

The study design of the present study is longitudinal, using data from two waves of measurement. This is of course a strength of the study and, as often emphasized by researchers, there is a constant need for more longitudinal studies in order to determine causal relationships. However, as pointed out by Singer and Willet (2003), the use of only two waves of measurement impairs the possibility of studying individual trajectories of change, since this makes the data susceptible to the issue of true change being confounded with measurement error. Hence, future studies should preferably include three waves of measurement or more in order to capture development over time better.

7 Acknowledgements

The study received financial support from the AFA insurance company and funding from Karolinska Institutet.

8 References

- Ahola, K., & Hakanen, J.J. (2007). Job strain, burnout, and depressive symptoms: A prospective study among dentists. *Journal of Affective Disorders, 104*, 103-110.
- Ahola, K., Kivimäki, M., Honkonen, T., Virtanen, M., Koskinen, S., Vahtera, J., & Lönnqvist, J. (2008). Occupational burnout and medically certified sickness absence: A population-based study of Finnish employees. *Journal of Psychosomatic Research, 64*, 185-193.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Brandt, W., & Rymenans, R. (2000). Recruitment of educational personnel. Geneva: International Labour Office
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford Press.
- Byron, K. (2005). A meta-analytic review of work-family conflict and its antecedents. *Journal of Vocational Behavior, 67*, 169-198.
- Cherniss, Cary. (1980). *Professional burnout in human service organizations*. New York: Praeger.
- Cherniss, Cary. (1995). *Beyond burnout: Helping teachers, nurses, therapists, and lawyers recover from stress and disillusionment*. New York: Routledge.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale: Lawrence Erlbaum.
- Collins, LM, Schafer, JL, & Kam, CM. (2001). A comparison of inclusive and restrictive strategies in modern missing data procedures. *Psychological Methods, 6*, 330-351.
- Curbow, B., McDonnell, K., Spratt, K., Griffin, J., & Agnew, J. (2003). Development of the work-family interface scale. *Early Childhood Research Quarterly, 18*, 310-330.
- Dallner, M., Elo, A. L., Gamberale, F., Hottinen, V., Knardahl, S., Lindström, K., . . . Ørnhede, E. (2000). *Validation of the general nordic questionnaire (qpsnordic) for psychological and social factors at work*. Copenhagen: Nordic Council of Ministers.
- De Lange, A., De Witte, H., & Notelaers, G. (2008). Should i stay or should i go? Examining longitudinal relations among job resources and work engagement for stayers versus movers. *Work & Stress, 22*, 201-223.
- Demerouti, E., Bakker, A. B., & Bulters, A. J. (2004). The loss spiral of work pressure, work-home interference and exhaustion: Reciprocal relations in a three-wave study. *Journal of Vocational Behavior, 64*, 131-149.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.
- Duchscher, J. E. B. (2009). Transition shock: The initial stage of role adaptation for newly graduated registered nurses. *Journal of Advanced Nursing, 65*, 1103-1113.
- Evers, W. J. G., Tomic, W., & Brouwers, A. (2004). Burnout among teachers: Students' and teachers' perceptions compared. *School Psychology International, 25*, 131-148.
- Finkel, S.E. (1995). *Causal analysis with panel data*. Thousand Oaks, California: SAGE Publications, Inc.
- Friedman, Isaac A. (2000). Burnout in teachers: Shattered dreams of impeccable professional performance. *Journal of Clinical Psychology, 56*, 595-606.
- Gali Cinamon, R, & Rich, Y. (2010). Work family relations: Antecedents and outcomes. *Journal of Career Assessment, 18*, 59.
- Gavish, B, & Friedman, Isaac A. (2010). Novice teachers' experience of teaching: A dynamic aspect of burnout. *Social Psychology of Education, 13*, 141-167.
- Glass, G. V., & Hopkins, K. D. (1995). *Statistical methods in education and psychology*. Boston: Allyn & Bacon.
- Goddard, R, & Goddard, M. (2006). Beginning teacher burnout in queensland schools: Associations with serious intentions to leave. *Australian Educational Researcher, 33*, 61.
- Goddard, R, O'Brien, P, & Goddard, M. (2006). Work environment predictors of beginning teacher burnout. *British Educational Research Journal, 32*, 857-874.
- González-Romá, V., Schaufeli, W. B., Bakker, A. B., & Lloret, S. (2006). Burnout and work engagement: Independent factors or opposite poles? *Journal of Vocational Behavior, 68*, 165-174.

- Hakanen, J.J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit innovativeness. *Journal of Vocational Behavior, 73*, 78-91.
- Hakanen, J.J., Schaufeli, W. B., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress, 22*, 224-241.
- Halbesleben, J. R. B. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 102-117). New York: Psychology Press.
- Halbesleben, JRB. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. *Work Engagement: A Handbook of Essential Theory and Research, 102*.
- Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *American Psychologist, 44*, 513-524.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology, 50*, 337-421.
- Hobfoll, S. E., & Shirom, A. (2000). Conservation of resources theory: Applications to stress and management in the workplace. In R. T. Golembiewski (Ed.), *Handbook of organization behavior* (2 ed., pp. 57-81). New York, New York: Marcel Dekker.
- Hu, L.-T., & Bentler, P. M. . (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.
- Hu, L.-T., & Bentler, Peter M. . (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification *Psychological Methods, 3*, 424-453.
- Hultell, D. (2011a). *Lost in transition? A study of newly graduated teachers' experiences during the initial period of employment*. (Ph.D. thesis), Karolinska Institutet, Stockholm. Retrieved from <http://publications.ki.se/jspui/handle/10616/40481>
- Hultell, D. (2011b). *Lärares erfarenheter av mobbing under de tre första åren i arbetslivet*. Stockholm: Karolinska Institutet.
- Hultell, D., & Gustavsson, J. P. (2010). A psychometric evaluation of the scale of work engagement and burnout (swebo) *Work, 37*, 261-274.
- Hultell, D., & Gustavsson, J. P. (2011). Factors affecting burnout and work engagement in teachers when entering employment *Work, 40*, 85-98.
- Ingersoll, R. M., & Smith, T. (2003). The wrong solution to the teacher shortage. *Educational Leadership, 60*, 30-33.
- Innstrand, ST, Langballe, EM, Espnes, GA, Falkum, E, & Aasland, OG. (2008). Positive and negative work-family interaction and burnout: A longitudinal study of reciprocal relations. *Work & Stress, 22*, 1-15.
- Kelchtermans, G, & Ballet, K. (2002). The micropolitics of teacher induction. A narrative-biographical study on teacher socialisation. *Teaching and Teacher Education, 18*, 105-120.
- Kinnunen, M.-L., Feldt, T., Kinnunen, U., & Pulkkinen, L. (2008). Self-esteem: An antecedent or a consequence of social support and psychosomatic symptoms? Cross-lagged associations in adulthood. *Journal of Research in Personality, 42*, 333-347.
- Kinnunen, U., Feldt, T., Geurts, S., & Pulkkinen, L. (2006). Types of work-family interface: Well-being correlates of negative and positive spillover between work and family. *Scandinavian Journal of Psychology, 47*, 149-162.
- Kinnunen, U., & Mauno, S. (1998). Antecedents and outcomes of work family conflict among employed women and men in finland. *Human Relations, 51*, 157-177.
- Kramer, M. (1974). *Reality shock: Why nurses leave nursing*. Saint Louis: Mosby.
- Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review, 53*, 27-35.
- Lait, J., & Wallace, J. E. (2002). Stress at work: A study of organizational-professional conflict and unmet expectations. *Industrial Relations, 57*, 463-490.
- Langelaan, S., Bakker, A. B., van Doornen, L. J. P., & Schaufeli, W. B. (2006). Burnout and work engagement: Do individual differences make a difference? *Personality and Individual Differences, 40*, 521-532.

- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.
- Llorens, S., Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2007). Does a positive gain spiral of resources, efficacy beliefs and engagement exist? *Computers in Human Behavior, 23*, 825-841.
- Maslach, C., & Jackson, S. E. (1986). *Maslach burnout inventory manual* (2 ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Leiter, M. P. (1997). *The truth about burnout*. San Francisco: Jossey-Bass Publications.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397-422.
- Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of Vocational Behavior, 70*, 149-171.
- Melamed, S., Shirrom, A., Toker, S., Berliner, S., & Shapira, I. (2006). Burnout and risk of cardiovascular disease: Evidence, possible causal paths, and promising research directions. *Psychological Bulletin, 132*, 327-353.
- Muthen, BO, & Muthen, LK. (2010). *Mplus version 6.1*. Los Angeles, CA: Muthén & Muthén
- Prieto, L. L., Soria, M. S., Martínez, I. M., & Schaufeli, W. B. (2008). Extension of the job demands-resources model in the prediction of burnout and engagement among teachers over time. *Psicothema, 20*, 354-360.
- Salanova, M., Bakker, A.B., & Llorens, S. (2006). Flow at work: Evidence for an upward spiral of personal and organizational resources. *Journal of Happiness Studies, 7*, 1-22.
- Schaufeli, W. B., & Bakker, A. B. (2003). *The utrecht work engagement scale (uwes): Test manual*: Utrecht, The Netherlands: Department of Social and Organizational Psychology.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293-315.
- Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior, 30*, 893-917.
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.
- Schaufeli, W. B., Taris, T. W., & van Rhenen, W. (2008). Workaholism, burnout, and work engagement: Three of a kind or three different kinds of employee well-being? *Applied Psychology, 57*, 173-203.
- Schwarzer, R., & Hallum, S. (2008). Perceived teacher self efficacy as a predictor of job stress and burnout: Mediation analyses. *Applied Psychology, 57*, 152-171.
- Seppälä, P., Mauno, S., Feldt, T., Hakanen, J. J., Kinnunen, U., Tolvanen, A., & Schaufeli, W. B. (2009). The construct validity of the utrecht work engagement scale: Multisample and longitudinal evidence. *Journal of Happiness Studies, 10*, 459-481.
- Simbula, S., Guglielmi, D., & Schaufeli, W. B. (2010). A three-wave study of job resources, self-efficacy, and work engagement among italian schoolteachers. *European Journal of Work and Organizational Psychology, First published on: 07 June 2010 (iFirst)*, 1-20.
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York: Oxford University Press.
- Skaalvik, EM, & Skaalvik, S. (2010). Teacher self-efficacy and teacher burnout: A study of relations. *Teaching and Teacher Education, 26*, 1059-1069.
- SPSS Inc. (2008). *Spss 17.0 for windows* Chicago: SPSS Inc.
- Streiner, DL. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment, 80*, 99-103.
- Swider, BW, & Zimmerman, RD. (2010). Born to burnout: A meta-analytic path model of personality, job burnout, and work outcomes. *Journal of Vocational Behavior, 76*, 487-506.

-
- Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction. *Work & Stress, 22*, 277-294.
- Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research, 54*, 143-178.
- Wännström, I., Djordjevic, A., Hultell, D., & Gustavsson, J. P. (2009). Lärarstudenters erfarenheter av stärkande utbildningsmoment och engagerande förebilder. Stockholm: Karolinska Institutet.
- Wännström, I., Hultell, D., & Gustavsson, J. P. (2009). Lärarstudenters erfarenheter av stöd och psykosocialt klimat under lärarutbildningen. Stockholm: Karolinska Institutet.
- Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational Behavior, 74*, 235-244.
- Yuan, K.H., & Bentler, P.M. (2000). Three likelihood-based methods for mean and covariance structure analysis with nonnormal missing data. *Sociological Methodology, 30*, 165-200.

9 Rapporter

Forskargruppen kring LUST- och LÄST-projekten är en del av sektionen för psykologi, Institutionen för Klinisk Neurovetenskap, Karolinska Institutet. Som en del av verksamheten utges rapporter sammanställda i tre olika skriftserier. Skriftserierna benämns:

- A. Forskningsrapporter
- B. Arbetsrapporter
- C. Övriga rapporter

Följande rapporter har tidigare utgivits:

- No. B 2007:1. Longitudinell Undersökning av Sjuksköterskors Tillvaro (LUST-studien): En landsomfattande longitudinell enkätstudie av sjuksköterskestudenters hälsoutveckling och karriärval under utbildningsåren och i mötet med arbetslivet: Urvalsram, kohorter och genomförande 2002-2006. Gustavsson, P., Svärdson, Å., Lagerström, M., Bruce, M., Christensson, A., Schöldt-Håård, U., & Omne-Pontén, M.
- No. B 2007:2. Lärares Tillvaro i Utbildning och Arbete: LÄST-studien. Urvalsram, kohort och genomförande 2005-2006. Gustavsson, P., Kronberg, K., Hultell, D., & Berg, L-E.
- No. B 2007:3. Exit 2006: En landsomfattande populationsbaserad studentspeglning av sjuksköterskeutbildningen. Hasson, D., Omne-Pontén, M., & Gustavsson, P.
- No. B 2007:4. Lärarutbildningen anno 2006. En nationell studentutvärdering baserad på avgångsstudenterna hösten 2006. Hultell, D., Kronberg, K., & Gustavsson, P.
- No. B 2008:1. (2:a upplagan). Den nyfärdiga sjuksköterskans arbetsvillkor. En beskrivning av anställning, verksamhet och arbetsförhållanden 1 år efter utbildningen. Rudman, A., Schöldt-Håård, U., & Gustavsson, P.
- No. C 2008:1. Hjälptill självhjälp. En lathund för SPSS. Hultell, D.
- No. B 2009:1. Den nyfärdiga sjuksköterskans arbetsvillkor. En beskrivning av anställning, verksamhet och arbetsförhållanden 1 år efter utbildningen. Rudman, A., Djordjevic, A., Frögéli, E., & Gustavsson, P.
- No. B 2009:2. Det första året i yrket – Nyexaminerade lärares erfarenheter och upplevelser av arbetsvillkor och yrkesroll. Frögéli, E., Rudman, A., Hultell D., & Gustavsson, P.
- No. B 2009:3. Övergången mellan utbildning och yrkesliv: Lärares reflektioner kring yrkesförberedelse, introduktion och arbetssituation 2 år efter lärarexamen. Djordjevic, A., Rudman, A., & Gustavsson, P.
- No. B 2009:4. Lärarstudenters erfarenheter av stärkande utbildningsmoment och engagerande förebilder. Wännström, I., Djordjevic, A., Hultell, D., & Gustavsson, P.
- No. B 2009:5. Lärarstudenters erfarenheter av stöd och psykosocialt klimat under lärarutbildningen. Wännström, I., Hultell, D., & Gustavsson, P.
- No. B 2010:1. Manual of the Scale of work engagement and burnout (SWEBO). Hultell, D. & Gustavsson, P.
- No. B 2010:2. Lärarstudenters uppfattning om tillägnad kompetens och yrkesförberedelse. Frögéli, E., Wännström, I., & Gustavsson, P.

- No. B 2011:1. 235 röster om ”glappet”. Sjuksköterskors reflektioner om övergången mellan utbildning och yrkesliv 2 år efter examen. Djordjevic, A., Rudman, A., & Gustavsson, P.
- No. B 2011:2. Lärares erfarenheter av mobbing under de tre första åren i arbetet. Hultell, D.
- No. A 2012:1. A note on the assessment of performance-based self-esteem. Hallsten, L.
- No. A2013:1. A longitudinal descriptive study of sickness absence in sequential cohorts of new graduated nurses in Sweden between 2001 and 2006. Lövgren M, Gustavsson P, & Rudman A.
- No. A2013:2. A prospective study of changes in burnout and work engagement for beginning teachers. Hultell D, & Gustavsson P.
- No. B 2013:1. Utbildningens förberedelse av sjuksköterskestudenter för användning av forskningsresultat och tillämpning av evidensbaserad vård –En jämförelse mellan lärosäten. Nilsson-Kajermo, K., Rudman, A., Wallin, L., & Gustavsson, P.
- No. B 2013:2. Lärares karriärvägar och hälsoutveckling de första åren efter utbildning. Enkät använd vid LÄST-projektets datainsamling tre år efter examen (2010). Hultell D, Rudman A, & Gustavsson P.
- No. B 2013:3. Sjuksköterskors karriärvägar och hälsoutveckling de första åren efter utbildning. Enkät använd vid LUST-projektets datainsamling för X2004-kohorten fem år efter examen (2010). Rudman A, Hultell D, & Gustavsson P.
- No. B 2013:4. Sjuksköterskors karriärvägar och hälsoutveckling de första åren efter utbildning. Enkät använd vid LUST-projektets datainsamling för X2006-kohorten tre år efter examen (2010). Rudman A, Hultell D, & Gustavsson P.
- No. B2013:5. Lärares och sjuksköterskors hälsoutveckling och karriärvägar de första åren efter utbildning: Rapport till AFA Försäkring. Gustavsson P, Hultell D, & Rudman A.
- No. B2013:6. Orsaker till ökande problem med stress under sjuksköterskeutbildningen – En longitudinell analys. Gustavsson P, Hultell D, & Rudman A.

Rapporterna återfinns via följande länk:

<http://ki.se/ki/jsp/polopoly.jsp?d=39785&a=124902&l=sv>



**Karolinska
Institutet**