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LOST IN TRANSITION?

A STUDY OF NEWLY GRADUATED TEACHERS' EXPERIENCES DURING THE INITIAL PERIOD OF EMPLOYMENT

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ABSTRACT

The most crucial factors affecting burnout and work engagement when entering employment were feelings of competence to satisfactorily perform one's work, the discrepancy between previous expectations and the actual conditions of employment, and the balance between work and private life. Beginning teachers who felt competent, had their expectations met, and had a sound balance between their work and private life experienced less burnout and were more engaged in their work. Overall, most teachers coped well with the transition from education to employment and had low levels of burnout and high levels of work engagement. However, there were those who experienced strain and rather quickly decided to leave the teaching profession and there were those who suffered from burnout.

The background to the study was the steep increase in levels of long-term sick leave due to mental illness that occurred in Sweden in the late 1990s. Teachers were one of the occupations that consistently had the highest levels of long-term sick leave, and teachers in Sweden have also been found to have the highest levels of work-related stress. Moreover, the transition from higher education to employment has been found to be quite a challenge for newcomers, and it has been found that the initial period of employment is critical when it came to the development of work-related attitudes and especially for the development of burnout.

The overall aim of the thesis was to study teachers' transition from education to employment, focusing on their experiences of burnout and work engagement.

The data used in the studies originated from the Prospective Analysis of Teachers Health (PATH) study. The PATH study has a longitudinal study design and data were collected annually on five occasions using questionnaires. Two data collections were performed during the final two years of education and three during the initial three years of employment. A total of 4,067 student teachers from the whole of the country with approximately two years left of their education were contacted for participation, of whom 2,853 responded and constituted the cohort of the study. Data were analyzed using quantitative analyses.

The results showed that experiences during education to some extent affected initial levels of burnout and work engagement. It was, however, evident that both burnout and work engagement were mainly affected by the conditions of employment. Beginning teachers who experienced high levels of demands and low levels of resources were more likely to experience burnout, whereas inverse relationships were found for work engagement. Moreover, it was also found that first-year experiences of employment had a significant impact on the development of burnout and work engagement, indicating that there were spiral-like developmental patterns of both constructs, a positive spiral resulting in work engagement and a negative spiral resulting in burnout.

In sum, the majority of the teachers managed the transition well and remained engaged in their work. The major impact of unmet expectations and feelings of competence on burnout and work engagement highlights that it is crucial to prepare the student

teachers well for their future work. It thus seems as if there is important work to be done in the teacher education programs in Sweden in providing future teachers with the appropriate skills and knowledge needed to be a successful teacher as well as presenting a realistic picture of the reality of what it will be like working as a teacher.

LIST OF PUBLICATIONS

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CONTENTS

LIST OF ABBREVIATIONS

CFI	Comparative Fit Index
EESS	Explained Error Sum of Squares
LANE	Longitudinal Analysis of Nursing Education
MBI	Maslach Burnout Inventory
NS	Non-Significant
OLBI	Oldenburg Burnout Inventory
OR	Odds Ratio
PATH	Prospective Analysis of Teachers' Health
PBSE	Performance Based Self-Esteem
r	Pearson's correlation coefficient
R^2	Explained variance
rANOVA	Repeated measures analysis of variance
RJP	Realistic Job Preview
RMSEA	Root Mean Square Error of Approximation
SMBM	Shirom-Melamed Burnout Measure
SMVM	Shirom-Melamed Vigor Measure
SPSS	Statistical Package for the Social Sciences
SRH	Self Rated Health
SRMR	Standardized Root Mean square Residual
SWEBO	Scale of Work Engagement and BurnOut
T-2	First wave of measurement
T-1	Second wave of measurement
T1	Third wave of measurement
T2	Fourth wave of measurement
T3	Fifth wave of measurement
TSE	Teacher Self-Efficacy
UWES	Utrecht Work Engagement Scale
WFI	Work-Family Interface
β	Beta Standardized regression coefficient
η^2	Eta square
χ^2	Chi square

1 INTRODUCTION

In the late 1990s the amount of long-term sick leave due to mental illness started to increase in Sweden. Between 1998 and 2002 there was an increase of more than 10%, the increase finally came to an end in 2004 and the level has now stabilized at approximately 25%, nearly 10% higher than that reported in 1998 (AFA, 2007, 2008, 2009, 2010). In order to gain an understanding of the steep increase, two studies were initiated at Karolinska Institutet. The studies focus on nurses and teachers, two occupational groups that have had consistently high levels of long-term sick leave due to mental illness. Furthermore, it has been found that the greatest increase in mental illness in Sweden has been for young women (Socialstyrelsen, 2005, 2009), and that women working in the public sector have higher levels of mental illness (Riksförsäkringsverket, 2001). A greater increase in mental illness has also been found for younger persons in the labor market and students (Hallsten, Bellaagh, & Gustafsson, 2002). In addition, it has also been found that newcomers have often experienced difficulties when entering employment and that this period is crucial in developing work-related attitudes (Cherniss, 1980).

Given these facts a decision was made to study the mental well-being of these two occupational groups during their initial period of employment and also take their experiences during the final years of higher education into consideration. The first study was initiated in 2002 and is called the Longitudinal Analysis of Nursing Education (LANE) study (Gustavsson, Svärdson, et al., 2007; Rudman, Omne-Pontén, Wallin, & Gustavsson, 2010). The second study was initiated in 2005 and is called the Prospective Analysis of Teachers' Health (PATH) study (Gustavsson, Kronberg, Hultell, & Berg, 2007). Both studies were funded by the AFA insurance company. The two studies had a similar study design and data were collected using questionnaires during the final period of education and during the initial period of employment.

It is within the framework of the PATH study that the present thesis has its starting point, with the focus on burnout and work engagement during the transition from higher education to employment for beginning teachers.

1.1 LOST IN TRANSITION

The transition from higher education to work life is a major life event and a challenge. It involves testing the knowledge acquired during education in a real-life work setting, and finding out whether expectations of the work are realized or not. Furthermore, there is a process of organizational socialization, with the aim of successful adaptation to the work role and work tasks, as well as gaining social acceptance from the new colleagues and supervisor. All in all, this adds up to quite a trial. A transition characterized by positive experiences can lead to increased job satisfaction and organizational commitment (Mitchell, Scott, Hendrick, & Boyns, 1998; Smith & Ingersoll, 2004), whereas a negative transition period might result in turnover and burnout (Brandt & Rymenans, 2000). The number of teachers who graduated by the end of the 1990ies in Sweden and were employed as a teacher three years after graduation ranged from about 80% to 95%. Of those employed three years after graduation the number of teachers

who had left the teaching occupation one year later ranged from approximately 10% to 20% (Statistiska centralbyrån, 2001). Cherniss (1980) studied individuals within the human services professions (including teachers) during their transition from higher education to work life, and came to the conclusion that for many people 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.

This transition has been found to be especially problematic for beginning teachers and has resulted in high levels of burnout and turnover for this occupational group (e.g., Brandt & Rymenans, 2000; Gavish & Friedman, 2010; Goddard & Goddard, 2006; Goddard, O'Brien, & Goddard, 2006; Ingersoll & Smith, 2003). Furthermore, it has commonly been found that burnout is negatively related to age (Schaufeli & Enzmann, 1998). These findings imply that younger employees (i.e., more inexperienced) would be more vulnerable to burnout compared to older colleagues, something that has been empirically supported (Brewer & Shapard, 2004). The problems associated with entering employment have led to the development of induction programs and mentoring programs for beginning teachers with the aim of making the transition smoother. Research indicates that the programs have positive effects such as increased job satisfaction, reduced levels of stress, and reduced turnover (Brandt & Rymenans, 2000; Kelley, 2004; Mitchell, et al., 1998; Smith & Ingersoll, 2004). In a review on teacher stress, induction programs were also listed as a central alleviating factor of stress (Kyriacou, 2001).

1.2 BURNOUT

The concept of burnout was developed in the 1970s when studying individuals with early career problems within the human service professions (Cherniss, 1980; Freudenberger, 1975; Kramer, 1974). It was initially believed that burnout was a problem restricted to individuals working within the human service professions, such as social workers, nurses and teachers (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Leiter, & Maslach, 2009). This view has changed and burnout is recognized as a more general work-related problem that is not restricted to the human service professions (Maslach, et al., 2001; Schaufeli & Enzmann, 1998).

There are many definitions of burnout, and these can be divided into two categories: state definitions and process definitions. State definitions focus on the state of experiencing the central characteristics of burnout. There are several state definitions of burnout, the most famous state definition of burnout is that suggested by Maslach and colleagues (Maslach & Jackson, 1986; Maslach, Jackson, & Leiter, 1996). 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, Depersonalization and Reduced personal accomplishment. Emotional exhaustion is characterized by the experience of a depletion of energy and the feeling of being emotionally overextended (Maslach & Leiter, 1997; Maslach, et al., 2001). Depersonalization, also known as “cynicism”, describes the feeling of detachment from work and from people at work and the development of cynical attitudes towards one’s work (Maslach & Leiter, 1997;

Maslach, et al., 2001). Reduced personal accomplishment describes an increasing feeling of inadequacy and reduced efficacy (Maslach & Leiter, 1997; Maslach, et al., 2001). Maslach and colleagues have developed the Maslach Burnout Inventory (MBI) to measure burnout (Maslach & Jackson, 1986; Maslach, et al., 1996), and this is the most frequently used instrument when studying burnout (Schaufeli & Enzmann, 1998). The reduced personal accomplishment dimension of the MBI has however been found to be rather problematic. It has the weakest empirical support of the MBI dimensions (Schaufeli & Enzmann, 1998), and it has been argued that it develops independently from exhaustion and depersonalization (Lee & Ashforth, 1996). Consequently the exhaustion and depersonalization dimensions are considered to be the "core of burnout" (Green, Walkey, & Taylor, 1991, p. 463), and the results related to the reduced personal accomplishment dimension is often considered to be less important, and the dimension is also often excluded in burnout studies.

In addition to the view of Maslach, Jackson, and Leiter there are several other state definitions of burnout. Although not all will be discussed here, two additional state perspectives will be presented that are commonly used in burnout studies or regarded as relevant in relation to the contents of the thesis.

As mentioned previously a core of burnout has emerged consisting of emotional exhaustion and depersonalization. Based on this view Demerouti presented an alternative burnout measure called the Oldenburg Burnout Inventory (OLBI) that is based on two dimensions: exhaustion and disengagement (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Exhaustion is viewed as the result of intense physical emotional and cognitive strain. Disengagement refers to distancing oneself from work, and developing negative attitudes toward the work object, work content, and work in general. Although there are conceptual differences between the OLBI and the original MBI, the dimensions of the OLBI correspond closely to the exhaustion and depersonalization dimensions of the MBI-GS (Halbesleben & Demerouti, 2005). Nevertheless, the OLBI is a widely used measure used in studies both on burnout and, more recently, work engagement. Another definition of burnout has been presented by Shirom and Melamed. Shirom and Melamed (Shirom & Melamed, 2006) conceptualize burnout as physical, emotional and cognitive exhaustion, and focus on a depletion of energetic coping resources to deal with occupational stressors. Their conceptualization is based on the conservation of resources (COR) theory, stipulating that individuals strive to obtain and retain resources assessed as valuable to the individual (Hobfoll, 1989). Shirom and Melamed have developed a burnout measure called the Shirom-Melamed Burnout Measure (SMBM). The scale assesses the dimensions of physical fatigue (lack of energy to perform daily work tasks), emotional exhaustion (lack of energy to engage in relationships with people at work), and cognitive weariness (slow thinking process and low mental agility) (Melamed, Shirom, Toker, Berliner, & Shapira, 2006).

Process definitions, in contrast to state definitions, focus on the process of burning out, and these definitions give the time aspect greater attention. The temporal development of symptoms related to burnout is thus central to process definitions. There are several process definitions, including, for example, those of Cherniss (1980) and Hallsten (1993). Most definitions, however, consider that burnout starts to develop when strain

is experienced that is related to a discrepancy between an individual's expectations and the resources and the reality and demands of employment. Most process definitions also state that this strain develops gradually and that the individuals may or may not be aware of the development. Finally, the various coping strategies employed by individuals become crucial when it comes to the development of burnout.

It should, however, be mentioned that state and process definitions of burnout are not mutually exclusive: rather they complement each other. Schaufeli and Enzmann (1998) suggested an integrated definition of burnout that takes into account both the state and the process perspectives. Schaufeli and Enzmann define burnout as follows:

> Burnout is persistent, negative work-related state of mind in 'normal' individuals that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviors at work. This psychological condition develops gradually but remains unnoticed for a long time by the individual involved. It results from a misfit between intentions and reality in the job. Often burnout is self-perpetuating because of inadequate coping strategies that are associated with the syndrome. (Schaufeli & Enzmann, 1998, p. 36)

This definition incorporates the central aspects of both state and process definitions and thus reflects a more integrative approach to burnout. It should also be mentioned that although Maslach and colleagues define burnout as a state, they also acknowledge that burnout involves a process. Maslach and colleagues view burnout as an erosion of engagement with one's work (Maslach & Leiter, 1997). This view assumes an initial state of work engagement, a concept that reflects a more recent direction in burnout research.

1.3 WORK ENGAGEMENT

In accordance with the view of positive psychology suggested by Seligman and Csikszentmihalyi (2000), attention has been paid to a positive contrasting concept to burnout called work engagement. Interest in work engagement is growing and this growth reflects a new direction of burnout research towards focusing on positive rather than negative outcomes.

Maslach and Leiter (1997) state that one must initially be engaged in order to burn out. This view suggests that work engagement is the direct opposite of burnout, and thus a lack of burnout indicates that individuals are engaged in their work. Three engagement dimensions correspond to the three burnout dimensions: energy – exhaustion, involvement – depersonalization, and efficacy – reduced personal accomplishment. A low score on any one of the burnout dimensions accordingly represents a high score on the corresponding engagement dimension.

The definition of work engagement suggested by Schaufeli and Bakker (2003) is probably the most predominant one. Schaufeli and Bakker view work engagement as a separate construct and not as the direct opposite of burnout, it consists of slightly different dimensions and is not assessed using scores that are the direct opposite of those of the MBI. Schaufeli and Bakker define work engagement as follows:

> Engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, engagement, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior. Vigor is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work. (Schaufeli & Bakker, 2003, pp. 4-5)

The main difference between this perspective and the one suggested by Maslach and colleagues is the addition of the absorption dimension. Vigor and dedication are viewed as direct opposites of exhaustion and cynicism (Schaufeli & Bakker, 2003). Schaufeli and Bakker have developed the Utrecht Work Engagement Scale (UWES), for measuring work engagement (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 viewed as a possible consequence of work engagement (Langelaan, Bakker, van Doornen, & Schaufeli, 2006). As a result of this, a core of work engagement has emerged consisting of vigor and dedication, and in many recent studies the absorption dimension has been dropped (e.g., Langelaan, et al., 2006; Prieto, Soria, Martínez, & Schaufeli, 2008; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). It has also been suggested that the Oldenburg Burnout Inventory (OLBI) can be used to assess work engagement (Bakker, Schaufeli, Leiter, & Taris, 2008). The OLBI assesses the core of burnout (i.e., exhaustion and disengagement) and includes both positively and negatively worded items. It is suggested that the positively worded items can be used to measure work engagement. A final comment is that Schaufeli and Bakker (Schaufeli & Bakker, 2003) actually state that vigor and dedication are the direct opposites of exhaustion and disengagement. Considering the poor validity of the absorption dimension and the emergence of the core of work engagement, this raises a question concerning the conceptual difference between burnout and work engagement, particularly given the fact that items developed to measure burnout are now considered to function as indicators of work engagement.

Although not defined as engagement, Shirom (2003a, 2010) has presented a related positive contrast to burnout focusing on energy, and has labeled his construct as vigor.

Shirom defines vigor as an affective state characterized by feelings of physical strength, emotional energy and cognitive liveliness. Shirom does not view vigor as the direct opposite of burnout but rather as a distinct construct which is obliquely related to burnout. Shirom and Melamed have developed an instrument for measuring vigor called the Shirom-Melamed Vigor Measure (SMVM) (Shirom, 2003a).

1.4 BURNOUT AND WORK ENGAGEMENT – STATES OR TRAITS

A psychological *state* is a momentary condition experienced at a certain level of intensity occurring at any longitudinal cross-section of a person's life and affected by both internal and external factors (Spielberger, 1972; Thorne, 1966). Psychological *traits*, on the other hand, are more permanent individual differences that make persons more prone to perceive the world in a particular way or to react and behave in a certain manner with predictable regularity across different contexts (Spielberger, 1972; Watson, 2000). Two important aspects of the difference between a state and a trait are context and time. A state is affected by the situation, whereas a trait is context-free. Furthermore, a state is momentary and changeable, whereas a trait is permanent and constant. Hence, specifying the context and using a period of time as a reference when measuring states is a way to distinguish whether or not a state or a trait is being measured. The difference between state and trait might seem trivial, but this difference is often overlooked, especially this appears to be the case when it comes to the operationalizations of burnout and work engagement.

Whether one adopts a state definition, a process definition or a joint definition of burnout, all of these definitions assume that burnout is a psychological state rather than a psychological trait. The definition of work engagement suggested by Schuafeli and Bakker (2003) implies that work engagement also is viewed as a psychological state. Thus, the concept of a "psychological state" is a central part of the definitions of both burnout and work engagement.

1.4.1 Operationalization of burnout

As mentioned in the previous section, definitions of burnout assume that burnout is a state and not a trait. Thus, when operationalizing burnout, time, literally, is of the essence. When measuring a state it is necessary to refer to a period of time, in order to be certain that what is being assessed really is something momentary and not something permanent. The state of depression (a construct related to burnout), for example, is usually measured in this way, and respondents are generally asked about symptoms during the last two weeks or longer periods of time (Hogan, Johnson, & Briggs, 1997). When reviewing the operationalizations of burnout, however, a time reference is generally not applied, and the items in most burnout measures are more trait-like in character. It is normally specified that the subject consider his or her work context, but the aspect of time is not taken into consideration. Of the previously discussed burnout measures, only the SMBM took these central state aspects into consideration, specifying both context (work), and using a time reference (last 30 days). Both the MBI and the OLBI, for example, suffers from this drawback, which reduces the accuracy and thus might impair results and conclusions based on the MBI and the OLBI. Burnout measures have also been criticized for incorporating both behavioral and

affective aspects, and not only affective aspects (Shirom & Melamed, 2006). The problem with incorporating behavioral aspects is that this might confound the assessment of a construct with behavior related to it (e.g., coping). Both the MBI and the OLBI includes behavioral aspects, whereas these are excluded in the SMBM. The items used to assess the emotional exhaustion dimension of the SMBM however focus on the perceived ability to engage emotionally with other person. There is therefore a risk that these items measure emotional efficacy rather than emotional exhaustion.

1.4.2 Operationalization of work engagement

Reflecting upon Schaufeli and Bakker's definition of work engagement raises the question of whether the definition is based on the view of work engagement as a state or a trait. According to the definition, work engagement is not a momentary state but rather a persistent and pervasive affective-cognitive state. This is rather contradictory, when it is considered that a state is momentary and context-dependent, whereas a trait is permanent and context-free. Taking this into account it appears that Schaufeli and Bakker's definition of work engagement is closer to the definition of a trait than it is to the definition of a state. Furthermore, comparing the actual content of the items of the UWES with the definition of the concept that the items are supposed to measure only adds to the confusion. None of the items of the UWES take time into account, and the items are trait-like in character. Hence, in contrast to the claim of Schaufeli and Bakker that work engagement is a cognitive-affective state, it is concluded after examining both the definition and the items of the UWES that the operationalization of work engagement is closer to a trait than a state. Given the state-related problems associated with the MBI and the OLBI when measuring burnout, these issues are also relevant when using these scales as indicators of work engagement (i.e., the reversed scores of the MBI, or the scores of the positively worded items of the OLBI). Regarding the SMVM, it does not suffer from this drawback. It is both context-specific (work) and uses a time reference (last 30 days). The problems related to the inclusion of behavioral aspects when measuring burnout is also present when measuring work engagement (i.e., the risk of not assessing the construct but behaviors related to it). Behavioral aspects are included in the UWES, the MBI, and the OLBI. They are excluded in the SMVM, however, as is the case for the SMBM, there are items that focus on the individuals' perceived ability and thus might assess aspects of cognitive and emotional efficacy.

1.4.3 The stability of burnout and work engagement over time

Both burnout and work engagement have previously been found to be stable over time (e.g., Hakanen, Schaufeli, & Ahola, 2008; Schaufeli, Bakker, & Van Rhenen, 2009; Schaufeli & Enzmann, 1998; Shirom, Toker, Berliner, Shapira, & Melamed, 2008; Taris, Le Blanc, Schaufeli, & Schreurs, 2005). The magnitude of the stability scores of both burnout and work engagement have been found to be more in line with those reported for psychological traits, which is surprising considering that both constructs are defined as psychological states. In order to obtain a more comprehensive view of the stability of these constructs, regarding both rank order stability and stability of mean levels, a short literature review was performed in order to identify longitudinal studies that reported stability score and/or mean levels over time as well as the distance in time between the waves of measurements. This allowed for an estimation of the average stability scores

for burnout and work engagement, and also allowed for an estimation of the average effect sizes of changes in burnout and work engagement over time. Furthermore, the distance in time was also used to obtain an estimation of the effect of time on the stability scores and the effect sizes of burnout and work engagement. A detailed description of the procedure for the literature reviews and detailed information about the included studies on burnout is presented in Appendix II, and the information about the studies on work engagement is presented in Appendix III.

A total of 35 studies were identified that reported stability scores. The number of waves in the studies varied from two to three, and the majority of the studies included two waves of measurement (30/35). In order to simplify the presentation of findings the stability scores are only presented for the stability between the first and last wave of measurement. The stability scores ranged from .40 to .84 and were averaged .68 (*SD* = .10). A regression analysis, $F(1) = 11.20$, $p = .002$, showed that time had a significant impact ($\beta = -.48$, $p = .004$) on stability. Based on the regression coefficients stability scores were calculated taking time into account, the stability score per week was .71 and the stability score per year was .66. Concerning the effect sizes, a total of 37 studies were identified that were eligible for calculating the effect size of change across time. The number of waves used in the studies ranged between two and seven, and the vast majority (29/37) of the studies included two waves. In order to simplify the presentation of findings the effect sizes is only presented for the differences between the first and last wave of measurement. The effect sizes for changes in burnout across time were calculated using the means for the first and last wave and the standard deviation of the first wave of measurement. The effect sizes ranged from .00 to .66 and averaged .14 (*SD* = .13). A regression analysis, $F(1) = 28.24$, $p < .001$, showed that there was a significant effect of time ($\beta = .66$, $p < .001$). Based on the regression coefficients, effect sizes were calculated taking time into account, the average effect size per week was .07 and the average effect size per year was .13.

A total of 14 studies were identified that reported stability scores. The number of waves used in the studies ranged from two to three, and the majority (12/14) included two waves. The stability scores ranged from .42 to .85 and averaged .65 (*SD* = .10). A regression analysis, $F(1) = 3.96$, $p = .068$, showed that there was no significant impact of time on stability. Concerning the effect sizes, a total of 15 studies were identified that were eligible for calculating the effect size of change across time. The number of waves used in the studies ranged from two to three, and the majority (12/15) included two waves. The effect sizes for changes in burnout across time were calculated using the means for the first and last wave and the standard deviation of the first wave of measurement. The effect sizes ranged in magnitude from .00 to .47 and averaged .12 (*SD* = .13). A regression analysis, $F(1) = 2.03$, $p = .176$ showed that there was no significant effect of time. It should be mentioned that the number of studies included in the regression analysis was quite small and the non-significant effect of time on stability and effect size should be interpreted with caution.

In sum, these findings clearly show that burnout and work engagement are stable constructs regarding both rank-order and change in levels. It thus appears as if burnout and work engagement exhibit stabilities that are more in line with those expected for psychological traits. This is puzzling, considering that they are both defined as a

psychological state and therefore would be expected to vary over time, an issue which has been highlighted in the field of research on burnout (e.g., Schaufeli & Enzmann, 1998; Shirom, 2005).

1.5 THE DEVELOPMENT OF BURNOUT AND WORK ENGAGEMENT

As discussed in section 1.2 there are several suggestions of the process resulting burnout (e.g., Cherniss, 1980; Hallsten, 1993; Schaufeli & Enzmann, 1998). Most of these however are in agreement that burnout develops gradually over time and that burnout is a result of an overload of demands in relation to resources. The framework chosen to study burnout and engagement in this thesis was the job demands-resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, et al., 2001), a commonly used model in current research to study these constructs.

1.5.1 The Job Demands-Resources model

The basis of the JD-R model of burnout and work engagement is that each job has its own specific set of factors related to stress, which can be divided into two different categories: (1) job demands and (2) job resources (Bakker & Demerouti, 2007; Demerouti, et al., 2001). Job demands refer to factors which that require physical and mental effort and as a consequence are associated with physiological and psychological costs (Demerouti, et al., 2001). On the other hand, job resources refer to aspects of the job that help in achieving work goals, buffer the effect of job demands and stimulate personal growth and development (Demerouti, et al., 2001). The JD-R model assumes two underlying psychological processes. The first, called “the health impairment process”, stipulates that high levels of job demands result in strain and exhaustion of individuals’ physical and mental resources, which ultimately leads to a depletion of energy and health impairment (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). The second, called “the motivational process”, stipulates that high levels of job resources result in increased motivation, which leads to increased work engagement and improved performance (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). Levels of strain and motivation will ultimately affect organizational outcomes such as job performance and sick leave. This model has received empirical support, and it has been found that demands are more strongly related to burnout, while resources are more strongly related to work engagement (Hakanen, Schaufeli, et al., 2008; Mauno, et al., 2007; Prieto, et al., 2008; Van den Broeck, et al., 2008). The JD-R model is presented in Figure 1.

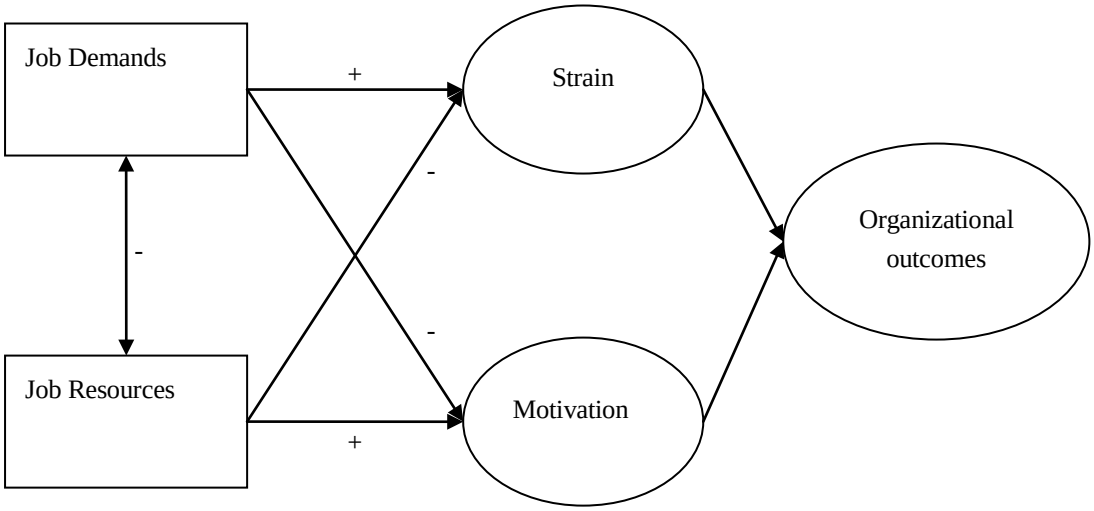

Figure 1
The Job Demands-Resource model.

1.5.1.1 Contextualization of the JD-R model

The general premise of the JD-R model is that it is context-specific, and that job demands and job resources vary between different occupations and situations. It is thus necessary to adjust the JD-R model to the specific situation being studied. In this case this means adapting the model so that it fits the perspective of newly graduated teachers, taking into consideration which factors during this transition period might affect their well-being at work. This includes adapting the model to fit a newcomer perspective, and identifying general factors related to burnout and work engagement as well as more teacher-specific factors.

Considering that burnout and work engagement are two work-related constructs, most studies have focused on factors affecting these outcomes during the time of employment. However, there are studies showing that factors during higher education affect future work-related well-being. It has been found that achievement strategies and self-esteem during education affect future burnout and work engagement (Salmela-Aro & Nurmi, 2007; Salmela-Aro, Tolvanen, & Nurmi, 2009), indicating that burnout and work engagement are not solely related to the work climate but also to experiences during higher education. In addition, Gavish and Friedman (2010) found that beginning teachers had high levels of burnout and suggested that this was likely to be due to the fact that many already started to experience burnout during their education. It is thus seems relevant to take educational factors into consideration, and given the fact that beginning teachers have just finished their education it is likely that these are more relevant when studying the initial period of employment.

Cherniss (1980) identified two factors of particular importance in the development of burnout for newcomers. The first was a “crisis of competence”, referring to feelings of doubt and insecurity regarding one’s ability to perform work tasks, despite having a formal education. If the required competence or performance standards are higher than expected it is likely that a crisis of competence will result. The second was unmet expectations (i.e., a discrepancy between one’s 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). Being exposed to this reality shock or not having one's expectations met have been identified as factors contributing to the development of burnout (Lee & Ashforth, 1996), and due to inexperience it seems likely that expectations have a greater impact during the early stages of employment, as suggested by Kramer (1974). Cherniss (1980) also identified factors in the work context and in private life that influenced feelings of stress and ultimately burnout (e.g., poor orientation, workload, role clarity, routinization, autonomy, social isolation, social support, and negative spillover). These factors are also related to the expectations of newcomers, and if the context of the workplace is worse than expected, this also acts as a stressor. Another decisive factor identified by Cherniss (1980) was the coping strategy adopted by newcomers. A passive coping strategy led to increased feelings of stress, whereas an active coping strategy led to problem solving and hence reduced levels of stress during the transition period.

In a review of teacher stress, Kyriacou (Kyriacou, 2001) listed identified central stressors for teachers. Many of the factors listed are more general stressors that are not necessarily restricted to teachers (e.g., work load, relations with colleagues, role conflict, and role ambiguity). More occupation-specific stressors were mainly related to classroom management and teaching poorly motivated students (aspects often included when measuring teacher self-efficacy). In addition to stressors, Kyriacou also listed identified factors alleviating stress (e.g., role clarity, sense of collegiality, social support, induction, and career advice). Moreover, Kyriacou also discuss the importance of coping strategy when dealing with stress. Compared to Cherniss, Kyriacou does not advocate one specific coping strategy, but rather argues that each individual must find out which coping strategy works for them in order to cope with stress. These factors are all of significance in relation to burnout for teachers; it should, however, be emphasized that many of these factors are not unique to the teaching profession but are important for employee well-being in many occupations. Furthermore, many of the factors identified by Kyriacou correspond to the factors identified by Cherniss and thus appear to be of importance both for newcomers and for those who are more experienced.

When reviewing studies focusing on strains experienced by beginning teachers it is apparent that many of the factors identified in these studies were also identified as being of importance for more experienced teachers. However, it is likely that these factors are perceived to be of more significance for the beginning teachers considering their lack of experience. Factors identified as stressors were classroom management, dealing with problematic students, work overload, lack of reward and recognition, social isolation, burden of administrative duties, class size, lack of social support, and lack of spare time (Friedman, 2000; Goddard, et al., 2006; Veenman, 1984). Factors identified as alleviating were supportive work climate, role clarity, starting out with smaller classes, having a mentor, learning and receiving feedback from experienced teachers (Gavish & Friedman, 2010; Gilbert, 2005).

Another construct which has been found to be of significance in relation to burnout and work engagement is self-efficacy. 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). Given this definition it is reasonable to assume that

levels of self-efficacy are related to the experience of the crisis of competence for newcomers. Self-efficacy affects individuals' behavior, motivation, and perseverance in achieving their goals. Self-efficacy beliefs are domain specific, and professional self-efficacy for teacher is referred to as teacher self-efficacy (TSE). Common aspects covered in scales assessing TSE are organizing and planning, student engagement, instruction, class-room management. The content of TSE scales often vary, however, since the scales are commonly adapted to fit the context of the teachers being studied. 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 just to teachers, in a recent meta-analysis of antecedents of work engagement, Halbesleben (2010) found that self-efficacy was the antecedent that was most strongly related to work engagement. These findings thus indicate that teachers who experience low levels of TSE are more likely to develop burnout and less likely to be engaged in their work.

Although burnout and work engagement are viewed as work-related constructs, there are numerous studies showing that the balance between work and private life is of significance (e.g., Byron, 2005; Gali Cinamon & Rich, 2010; Innstrand, Langballe, Espnes, Falkum, & Aasland, 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, Bakker, & Bulters, 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. Furthermore, there are data showing that teachers often take their work home with them (Arbetsmiljöverket, 2010a) and thus increase the risk of an imbalance between work and private life.

1.6 TEACHERS IN SWEDEN: A CONTEXTUALIZATION

The participants in the PATH study were due to graduate by the end of 2006 or by the beginning of 2007. This means that they started their teacher education at the start of the 21st century. In order to gain a better perspective on the context of the participants in the study it is necessary to present a description of the conditions relating to both teacher education and employment for teachers in Sweden during this period.

1.6.1 Education

Teacher education is the largest education program in Sweden with approximately 36,000 fulltime students and is currently available at 24 universities and colleges in Sweden (Regeringen, 2010; Utbildningsdepartementet, 2008). Although teacher education is still the largest education program in Sweden, there has been a decline in the number of applicants, e.g., in 2002/2003 there were approximately 15,500 applicants, while in 2008/2009 this number had dropped below 11,000 (Statistiska centralbyrån, 2010b). In 2007/2008, 45% were oriented towards teaching younger

students (i.e., preschool and ages 7-11) and 41% were oriented towards teaching older students (i.e., ages 12-18), while 14% did not choose an orientation when they applied (Högskoleverket, 2008). Approximately 25% of those applying to start the teacher education program were men, and among these more than 60% were oriented towards teaching older students (Högskoleverket, 2008).

In 2001 the teacher education program in Sweden underwent a reform (Regeringen, 2000). The major changes were that the previous eight diplomas were replaced by one joint diploma, each university was to create a new formal post with special responsibility for teacher education, and the students were given greater freedom in choosing which subjects to teach and how to structure their own education. The reform was implemented under rather extreme conditions, and the universities and colleges were not given appropriate time for preparation. This resulted in a time of chaos and there was great uncertainty regarding how the education should be structured, and students have reported that they felt like "guinea pigs" (Högskoleverket, 2005). It was during this time of change that the participants in the PATH study started their education.

In 2005 the Swedish National Agency for Higher Education evaluated how well the universities and the colleges had adapted to the reform (Högskoleverket, 2005). It was concluded that the implementation of the reform had resulted in many problems for both the universities and colleges and the student teachers. The freedom given to the student teachers regarding their education needs to be combined with adequate guidance counseling offered by the schools. This was, however, not the case, resulting in difficulties for the schools in creating clear progression in the education. Moreover, many student teachers have also chosen education programs without considering future needs in the teachers' labor market, which has resulted in difficulty in finding employment after graduating. The freedom of choice for the student teachers combined with poor guidance counseling has also resulted in many student teachers not having acquired core knowledge for teachers (e.g., test construction, grading, etc.). This in turn has resulted in there being a lack of a mutual core of teacher-related skills and knowledge for the student teachers. It was also concluded that the learning demands of the student teachers were too low.

In 2007 the Swedish National Agency for Higher Education reported that about one fourth of the student teachers registered between the fall of 2001 and the spring of 2005 had not yet graduated or were no longer registered as student teachers (Högskoleverket, 2007). Among those who had left the teacher education program, 40% had started a different educational program, and 20% had started working as teachers without receiving a formal qualification. According to these figures, only approximately 75% of the student teachers actually completed their education. Among those students who completed their education, during the period between 2004 and 2008, about 55% were oriented towards teaching younger students and 45% were oriented towards teaching older students (Statistiska centralbyrån, 2010b).

In 2008 the teacher education program was evaluated yet again with the aim of identifying key problems that needed to be addressed, and ultimately presenting a proposal for a new teacher education program in Sweden (Utbildningsdepartementet,

2008). In addition to only evaluating the universities, questionnaires were sent to teachers who had completed the new education program. The sample consisted of 8,000 teachers, of whom 72% responded. When asked about their experiences during their education program, the teachers reported that they had experienced low demands regarding course literature, form of teaching, and examination. A high number of teachers also reported that the education program did not prepare them well for employment. They reported that they had not been given sufficient skills regarding teaching students to read and write, test construction, grading, cultural diversity, and information technology (IT).

Based on findings of the evaluation several suggestions to change and improve the teacher education were presented. These suggestions combined with statements from universities and colleges and subject matter experts resulted in a Bill presented by the Swedish Government for a new reform of teacher education (Regeringen, 2010). Major changes that will be implemented are that four new diplomas will replace the existing one, the required special formal position responsible for the teacher education will be removed, there will be structural changes regarding the mutual core of teacher-related skills and knowledge, there will be an improvement in student-teaching practice, and improved internationalization of the education. The teacher education in Sweden is thus about to enter a new era of change that hopefully will improve the situation for teachers during their education and when entering employment.

1.6.2 Employment

By the end of the 1990s the levels of long-term sick leave (i.e., more than 90 consecutive days) due to mental illness started to increase and had nearly doubled over a period of five years. The levels stabilized in 2003 and have since been about one fourth of the amount of long-term sick leave (AFA, 2004, 2005, 2006, 2007, 2008, 2009, 2010). Although there has been stabilization in recent years, the levels of long-term sick leave due to mental illness are still considerably higher than in the late 1990s and today mental illness is the second most common reason for long-term sick leave. Interestingly, it has also been found that there has been parallel development of work-related problems caused by stress and mental strain (Arbetsmarknadsstyrelsen, Arbetsmiljöverket, Socialstyrelsen, & Försäkringskassan, 2006). In its last three reports AFA has presented more detailed information about the reasons for mental illness and about one in three cases is caused by a reaction to severe stress, the most common reason for long-term sick leave due to mental illness being mood disorders (AFA, 2008, 2009, 2010). Long-term sick leave due to mental illness has been found to be more common among women, especially for those women working in Swedish municipalities and county councils (AFA, 2008, 2009, 2010). For these women sick leave due to a reaction to severe stress is also more commonly reported. When looking into which occupations have the highest level of long-term sick leave due to mental illness, teachers are constantly found in the top (AFA, 2004, 2005, 2006). It thus appears that teachers are vulnerable when it comes to mental illness.

The participants in the PATH study were expected to graduate by the end of 2006 or by the beginning of 2007, and it is therefore of interest to obtain a picture of the labor market situation for student teachers who graduated during this period. Högskoleverket

has regularly reported the number of students who have established themselves in the labor market two years after finishing their education. In a follow up of Swedish student teachers that graduated in the fall of 2006 or the spring of 2007, it was found that 75% of the teachers oriented towards teaching younger students and 77% of the teachers oriented towards teaching older students had established themselves in the labor market in 2008 (Högskoleverket, 2010). The number of teachers who have established themselves in the labor market has been above 70% since 1999, and ranged between approximately 70% and 80% during the first eight years of the 21st century (Högskoleverket, 2010). Högskoleverket's definition of being established in the labor market in 2008 was that the individual was employed in November of the year in question, had an income exceeding SEK 190,200, that there were no indications of unemployment (full or part-time) or being on any labor market program, and that the individual was not still studying (Högskoleverket, 2010). When reviewing this definition it becomes clear that it is quite narrow and does not imply that that these numbers represent the number of students who have worked as teachers since graduating. In an evaluation of the new teacher education program performed in 2008, questionnaires were sent to a sample of 8,000 teachers who had completed the new teacher education program, of whom 72% responded. 90% reported that they were employed as teachers. Among the teachers who were employed, only 40% reported that their employment fully matched their teacher profile. This may potentially be a result of the freedom given to the student teachers to structure their educational program in ways that did not always meet the needs of labor market. This is, however, nothing new and it has previously been reported that too few are studying to work with younger students, and that too many are studying to work with older students (Högskoleverket, 2008; Statistiska centralbyrån, 2005, 2009), which ultimately will result in a mismatch, and teachers may be forced to take a job that does not match their educational profile. Despite all this, the vast majority were satisfied with working as a teacher. However, about one third reported that they had considered leaving the occupation.

School is the workplace with the largest number of employees in Sweden, with approximately 245,000 being employed as teachers (Statistiska centralbyrån, 2010a). In an evaluation of the work climate for teachers from 2002, it was reported that the most alarming issues in the psychosocial work climate for teachers were high workload and stress, feelings of inadequacy, and risk of burnout and long-term sick leave (Arbetsmiljöverket, 2002b). In a study from 2006 it was reported that 40% of the teachers always or most of the time felt stressed at work, and it was more common for women and teachers working with younger students to feel stressed at work (Skolverket, 2006). In more recent reports it has been found that teachers were one of the occupations with the highest levels of stress-related problems at work (Arbetsmiljöverket, 2010b), and that they had an overall poor psychosocial work climate (Arbetsmiljöverket, 2010a). It was found that teachers had a heavy workload that resulted in them often skipping lunch and taking work home with them, they had little influence on deciding their pace of work, they did not receive help/guidance in prioritizing their work, they had low levels of social support from their supervisors, they were subjected to violence or threat of violence, they were discriminated against on the grounds of sex, and they were exposed to sexual harassment. In addition, teachers were one of the occupations where the employees experienced high levels of both quantitative and qualitative job demands, and where the employees felt that their

work was psychologically demanding. This is, however, nothing new, teachers have been one of the occupations repeatedly found to have a poor psychosocial work environment with the same recurring problems throughout the last decade (Arbetsmiljöverket, 2002a, 2004, 2006, 2008). It thus feels safe to say that teachers have a tough work climate and that they are vulnerable to work-related stress.

Although the teacher occupation has been characterized by a poor psychosocial work environment and stressed employees, it should be mentioned that teachers also repeatedly rate their work as being more meaningful compared to other occupations (Arbetsmiljöverket, 2002a, 2004, 2006, 2008, 2010a). Although this should obviously be seen as something positive there is also an associated risk. When people feel that their work is meaningful it is likely that they will invest more time in their work and that they will be prepared to "go the extra mile". The risk is, however, that if the related extra strain becomes too great this will result in them ultimately using up their available resources to cope with the situation. This is also in line with the conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll & Shirom, 2000), and with the suggestion of Maslach and Leiter (1997) that one must initially be engaged to develop burnout.

2 AIMS

The overall aim of the thesis was to study teachers' transition from education to employment, focusing on their experiences of burnout and work engagement.

The specific aims of the papers included in the thesis are as follows.

The first aim was to develop an instrument measuring the state mood of burnout and work engagement and evaluate its psychometric properties.

The second aim was to study whether educational outcomes would predict future levels of burnout and work engagement during the first year of employment when controlling for variables related to the context of work and private life.

The third aim was to study how experiences during the first year of work life affected future levels of and changes in burnout and work engagement.

The fourth aim was to identify trajectories of burnout using a person-based approach clustering burnout levels across three waves of measurement.

3 METHOD

3.1 STUDY DESIGN

The data used in the thesis mainly originate from the Prospective Analysis of Teachers' Health (PATH) study. The PATH study is a longitudinal project studying teachers' transition from higher education to employment. The study started in the fall of 2005 and included five data collections using questionnaires, two during the final years of education and three during the initial years of employment. The sample consisted of approximately 4,000 Swedish student teachers from whole of the country. One of the main reasons for performing the study was the increase in long-term sick leave due to mental illness which took place in Sweden in the late 1990s. Teachers were consistently found to be among the occupations with the highest levels of long-term sick leave due to mental illness, and were therefore considered to be of special interest.

The PATH study is a sister project of the Longitudinal Analysis of Nursing Education (LANE) study. The LANE study has similar aim to the PATH study but focuses on nurses rather than teachers. Nurses are also one of the occupations with the high levels of long-term sick leave due to mental illness (AFA, 2007). For a more detailed description of the LANE study see Rudman, Ohmne-Pontén, Wallin, and Gustavsson (2010).

Although the main focus of the PATH study has been mental well-being among teachers, the study covers many different research areas, and a variety of publications have been produced (e.g., Djordjevic, Rudman, & Gustavsson, 2009; Frögéli, Rudman, Hultell, & Gustavsson, 2009; Hultell, Kronberg, & Gustavsson, 2007; Wännström, Djordjevic, Hultell, & Gustavsson, 2009; Wännström, Hultell, & Gustavsson, 2009). The reports are based on both quantitative and qualitative analyses and cover topics such as the student teachers' evaluations of their educational program and university, their educational achievements, social support and role models during their education, and the participants' experiences of obstacles during the first year of employment.

3.2 STUDY SAMPLE

One of the main aims of the PATH study was to study the development of mental illness across time. Based on previous studies it was estimated that the prevalence of depression ranged between 8-15% for the given population. In order to identify and characterize a subgroup suffering from mental illness approximately 200 individuals was needed (alpha = .80 and p = .01). Based on a low prevalence of depression (8%) and an attrition of 35%, it was estimated that a sampling frame of at least 3,900 individuals was needed (Gustavsson, Kronberg, et al., 2007).

The sampling frame consisted of two subgroups. The first group consisted of student teachers who were studying to become preschool teachers or teachers for students between the ages of 7-11 (Younger Age). Criteria for inclusion in the first group were that the student teachers were registered in semester five of seven, and that they attended a school with more than 80 students registered in the defined program in the

semester prior to the first data collection. Two exceptions were, however, made and Dalarna University and the University of Skövde were included although they had fewer than 80 students registered. A total of 2,847 student teachers from 18 schools were included in the sampling frame of the first group. The second group consisted of student teachers who were studying to become teachers for students between the ages of 12-18 (Older Age). Criteria for inclusion in the second group were that the student teachers were registered in semester seven of nine, and that they attended a school with more than 80 students registered in the defined program in the semester prior to the first data collection. One exception was, however, made and students from Dalarna University were included in the study although they had fewer than 80 student registered. A total of 1,220 student teachers from 12 schools were included in the sampling frame of the second group. The sampling frame for the two groups combined thus consisted of 4,067 student teachers. Although there were two subgroups of student teachers they were treated as one group in all analyses in the thesis, and the education program was instead included as a predictor allowing for group comparisons.

There were two different reasons why students from Dalarna University and University of Skövde were included despite these schools had fewer than 80 students registered in the semester prior to the first data collection. University of Skövde was included because it was included in a qualitative part of the PATH study and it was therefore of interest to be able to complement the qualitative data with quantitative data (Gustavsson, Kronberg, et al., 2007). Dalarna University was included because it had received positive reviews by the Swedish National Agency for Higher Education and thus was considered to be of special interest (Gustavsson, Kronberg, et al., 2007).

Data were collected annually using questionnaires, and five data collections have been performed: two during the final years of higher education and three during the first years of employment. The response rates ranged from 57.5% to 77.8%. An overview of the data collections, including time for respective data collection, number of respondents, and number of individuals who left the study, are presented in Figure 2. Of the potential 4,067 student teachers 2,853 responded to the first questionnaire and thus constituted the cohort of the study. The mean age of the participants was 28.7 (*SD* = 6.92) and 83.4% were females. There was no significant difference between the two subgroups of student teachers regarding age, $T(2851) = 1.79$, $p = .074$. When comparing the subgroups of teachers regarding sex it was evident that there were more women oriented towards teaching younger students, and more men oriented towards teaching older students, $\chi^2(1) = 297.16$, $p < .001$. There were 16.7% of the participants who had an immigrant background (the participants or at least one of its parents were born outside of Sweden) and it was more common for participants with an immigrant background to be oriented towards teaching younger students, $\chi^2(1) = 4.55$, $p = .033$. 41% of the participants had parents with an academic background (at least one of the parents had an academic background). There was a significant difference between the subgroups of student teachers, $\chi^2(1) = 25.17$, $p < .001$, and it was more common for participants oriented towards teaching older students to have parents with an academic background.

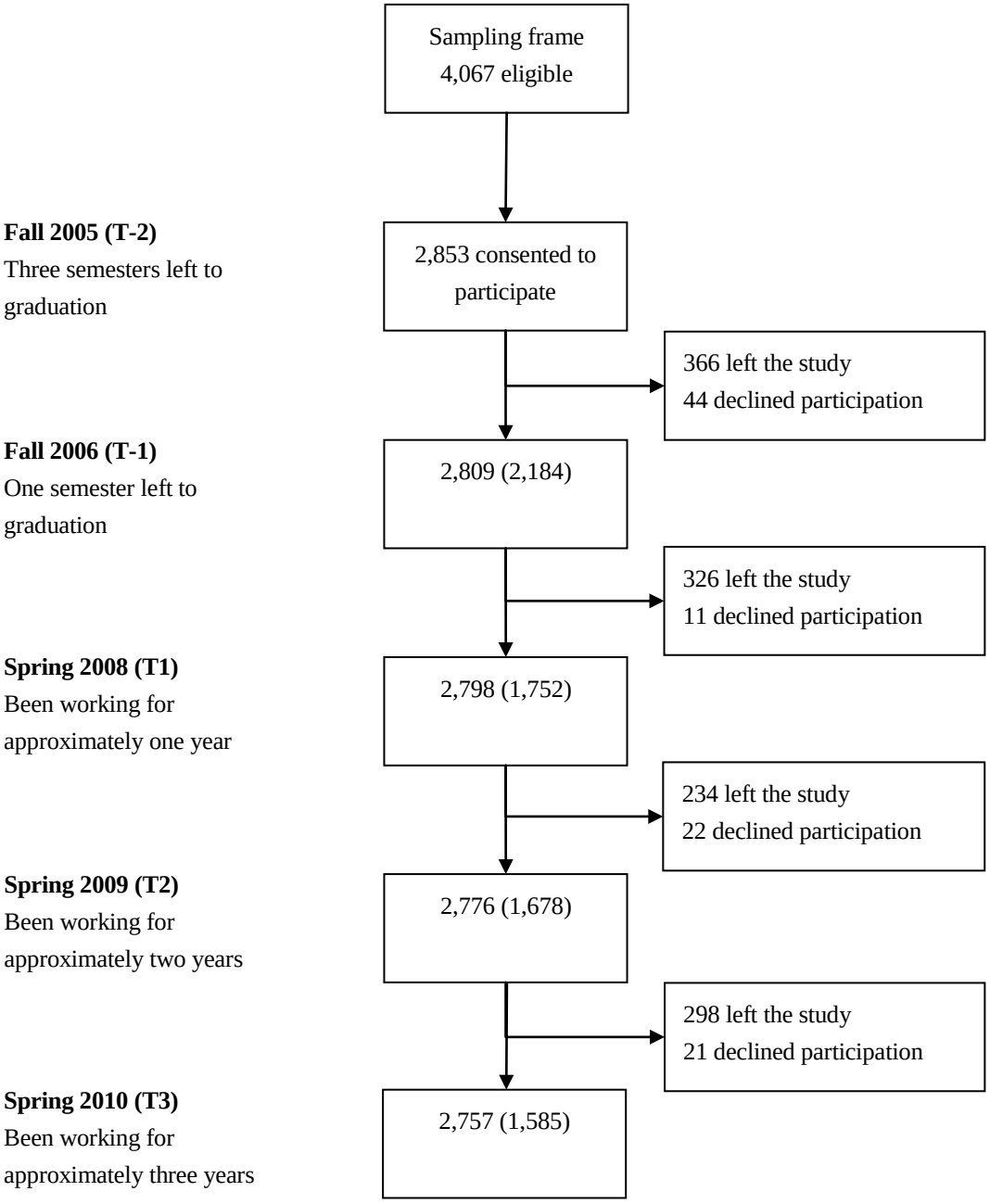

Figure 2

An overview of the data collections in the PATH study. The numbers in parenthesis are the numbers of respondents. Individuals who terminated participation are those who formally requested to leave the study whereas those who left the study are individuals who no longer returned questionnaires but did not formally request to leave the study.

There were 16 different response patterns among the participants, of the potential 4,067 individuals, a total of 1,149 (28.3%) participated in all waves of measurement. The different response patterns are presented in Table 1.

Table 1

The different response patterns of the participants in the PATH study.

Response pattern	*N*	%
Did not respond at T-2	1,214	29.9
T-2	410	10.1
T-2 & T-1	326	8.0
T-2 & T1	46	1.1
T-2, T-1 & T1	188	4.6
T-2 & T2	33	0.8
T-2, T-1 & T2	84	2.1
T-2, T1 & T2	30	0.7
T-2, T-1, T1 & T2	151	3.7
T-2 & T3	34	0.8
T-2, T-1 & T3	53	1.3
T-2, T1 & T3	17	0.4
T-2, T-1, T1 & T3	101	2.5
T-2, T2 & T3	29	0.7
T-2, T-1, T2 & T3	132	3.2
T-2, T1, T2 & T3	70	1.7
T-2, T-1, T1, T2 & T3	1,149	28.3

An attrition analysis was performed in order to detect if there was any systematic drop-out among the respondents over time. A repeated measures logistic regression analysis was performed using General Estimation Equations (GEE). The dependent variable was drop-out (responding vs. non-responding at each data collection, and individuals who had chosen to terminate their participation in the study were coded as non-responding) and the independent variables were time, sex, age, immigrant background, self-rated health (SRH), depression, and life satisfaction. Age was dichotomized and individuals who were 25 or younger were categorized as low and individuals who were 26 or older were categorized as high. For each independent variable it was also tested if there was an interaction with time. Main effects and interaction effects were tested using Wald χ^2 statistics. All the independent variables were assessed at baseline (T-2) and the dependent variable was assessed at each of the following waves of measurement. The results showed that there were no interactions for any of the variables with time but that there were main effects of time, sex, and SRH. The results showed that the response rate deteriorated across time (OR = .45, p < .001) and that there was a lower response rate for males (OR = 1.29, p = .017) and for participants with lower levels of SRH (OR = 1.36, p = .012). The results are presented in Table 2.

Table 2

Results of the repeated measures logistic regression analysis.

Variable	Wald χ^2	*df*	*p*
Constant	16.20	1	< .001
Time	87.76	3	< .001
Sex (Male)	16.64	1	< .001
Age (High)	0.50	1	.481
Immigrant background (Yes)	3.57	1	.059
SRH (Low)	7.12	1	.008
Life satisfaction (Low)	0.36	1	.551
Depression (Yes)	1.49	1	.223
Time x Sex	2.31	3	.510
Time x Age	1.47	3	.689
Time x Immigrant background	3.10	3	.377
Time x SRH	2.79	3	.425
Time x Life satisfaction	2.99	3	.394
Time x Depression	2.47	3	.480

3.2.1 Paper I

In Paper I data from both nurses and teachers were used. The reason for including nurses was that this allowed testing the instrument for measurement invariance across occupation. The data collected after the participants had graduated and had been working for approximately one year. There were 2,891 people who responded to the questionnaires, corresponding to a response rate of 68%. Criteria for inclusion in the study were that each respondent was currently working and had answered each of the items of the SWEBO. A total of 2,266 met the criteria for inclusion, of whom 1,316 were newly graduated teachers and 950 were newly graduated nurses. There were 1,981 females (87%) in the sample and the mean age of the sample was 32.04 years (*SD* = 7.37). The internal dropout rate for the burnout items ranged from 1.0% to 1.3%, whereas the internal dropout rate for the work engagement items ranged from 1.1% to 2.2%.

3.2.2 Paper II

In Paper II data were used from two waves of measurement. The data were collected during the final period of education and during the initial period of work life. Criteria for inclusion were that each respondent had participated in both waves and was currently working as a teacher. There were 2,809 teacher included in the first wave and 2,184 (77.8%) responded. Eleven participants left the study before the second wave and the sample consisted of 2,798 teachers whereof 1,752 (62.6%) responded. Of the potential 2,798 teachers there were 1,589 (56.7%) who responded to both waves. Of the 1,589 participants, 1,290 participants were working as a teacher at the time of the study. Reasons for not working among the 299 teachers were parental leave (*n* = 77), studying (*n* = 65), employed but not working as a teacher (*n* = 46), unemployed (*n* = 44), sick

leave (n = 5), left the teaching occupation (n = 4), and other reason (n = 22). Of the 299 participants 36 did not give any reason. Additional initial criteria for inclusion were that the respondents had answered all of the single item questions and at least 80% of the items for each separate scale. Internal drop out for the burnout items ranged from 1.1% to 1.4%, and from 1.2% to 2.3% for the work engagement items. Due to the large number of variables included in the study, the internal attrition of the variables resulted in a cumulative attrition of 41.1%. Since it was likely that an attrition rate of this magnitude would bias the results of the study, a decision was made to impute missing values for the 1,290 participants who were currently working as a teacher using multiple imputation (Enders, 2010). The mean age of the sample was 31.97 (SD = 7.52) and the proportion of women was 86%.

3.2.3 Paper III

In Paper III data were used from the first two waves of measurement after the teachers had entered work life. 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 1,952 met the criteria for inclusion and thus constituted the sample of the study. Although this might seem strange at first glance, in view of 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 1,952 teachers 85% were female and the mean age was 32.5 years (SD_{age} = 7.2). Internal dropout for the burnout items ranged from 4.6% to 5.0% at T1, and from 7.4% to 7.8% at T2. Internal dropout for the work engagement items ranged from 4.6% to 5.8% at T1, and from 7.3% to 8.5% at T2. The reason for the high levels of the internal dropout was that it was not required that the teachers were currently employed as a teacher. Levels of internal dropout were therefore examined after excluding the teachers who were not currently employed as a teacher. Internal dropout for the burnout items ranged from 1.0% to 1.4% at T1, and from 1.0% to 1.2% at T2. Internal dropout for the work engagement items ranged from 1.0% to 2.3% at T1, and from 1.0% to 2.0% at T2. Reasons for not working as a teacher at T1 were parental leave (n = 73), studying (n = 69), employed but not working as a teacher (n = 58), unemployed (n = 38), sick leave (n = 4), left the teaching occupation (n = 3), and other reason (n = 24). Of the 304 teachers not working 35 did not give any reason. Reasons for not working as a teacher at T2 were parental leave (n = 161), studying (n = 17), employed but not working as a teacher (n = 51), unemployed (n = 13), sick leave (n = 8), left the teaching occupation (n = 11), and other reason (n = 23). Of the 309 teachers not working 25 did not give any reason.

3.2.4 Paper IV

The data used in Paper IV were collected when the teachers had about one year left of their education (fall 2006), and then annually after the beginning teachers had graduated and entered work life (spring 2008, spring 2009, and spring 2010). Criteria for inclusion were that the respondents had participated in at all three waves of

measurement during work life and had answered at least 80% of the items in the burnout scale. A total of 816 met the criteria for inclusion and there were 697 (85.4%) females and the mean age of the sample was 34.95 (*SD* = 7.87). Internal dropout for the burnout items ranged from 0.1% to 0.4% at T1, from 0.1% to 0.5% at T2, and from 0.1% to 0.4% at T3. When comparing these levels to the other papers it is apparent that these were much lower. This was likely a consequence of the criteria for inclusion. Individuals that have participated in all three waves were probably more prone to respond to the questions in the questionnaire which results in the low levels of internal dropout. Reasons for not working as a teacher at T1 were parental leave (*n* = 8), employed but not working as a teacher (*n* = 4), unemployed (*n* = 5), and other reason (*n* = 4). Of the 30 teachers not working nine did not give any reason. Reasons for not working as a teacher at T2 were parental leave (*n* = 32), employed but not working as a teacher (*n* = 7), unemployed (*n* = 2), sick leave (*n* = 1), left the teaching occupation (*n* = 1), and other reason (*n* = 1). Of the 52 teachers not working three did not give any reason. Reasons for not working as a teacher at T3 were parental leave (*n* = 10), employed but not working as a teacher (*n* = 2), unemployed (*n* = 1), and other reason (*n* = 3).

3.3 DATA COLLECTION

There were five data collections, two during the final period of the participants' education (fall 2005 and fall 2006) and three during the initial period of employment (spring 2008, spring 2009, and spring 2010).

Data were collected using questionnaires. The research group at Karolinska Institutet formulated the questionnaire and then sent it to Statistics Sweden which administered the data collection. The questionnaires were sent by mail to the participants and then returned to Statistics Sweden. At each data collection the participants first received the questionnaire. Those who had not returned their questionnaire then received a letter thanking them for their participation in the study and reminding them to return the questionnaire. Two additional reminders were then sent to those who had not yet returned their questionnaire. There were about two weeks between each reminder for each data collection. During the first data collection there was, however, about a month between the second (December 14) and the third (January 11) reminders. The reason for this was that it was expected that there would be a poor effect from the reminders due to the Christmas holidays. The responses of the questionnaires were then scanned electronically and exported to a SPSS data file that was sent to the research group at Karolinska Institutet. All participants were anonymous and the research group only received a SPSS data file with coded identification numbers for the participants which were used to trace individuals longitudinally. The same procedure was carried out at each of the five data collections. The number of responses at each step in the data collections is presented in Table 3.

Table 3
Inflow of responses at each wave of measurement

Inflow	T-2	T-1	T1	T2	T3
Responded directly	1,408	1,231	882	886	749
Responded after one reminder	846	558	442	371	416
Responded after two reminders	323	254	275	240	242
Responded after three reminders	276	141	153	181	178
Total	2,853	2,184	1,752	1,678	1,585

3.3.1 Variables and instruments

The two outcome variables of the thesis were burnout and work engagement. Both burnout and work engagement were assessed using the SWEBO. The SWEBO was developed during the fall of 2007 and consists of two subscales, one measuring the state mood of burnout and one measuring the state mood of work engagement. The term state mood indicates that burnout and work engagement are viewed as being longer lasting and not instant like emotions, but still not permanent. The two subscales include a time reference (the last two weeks), and are context specific (work). The item of the SWEBE are 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 burnout subscale consists of three dimensions: exhaustion, disengagement, and inattentiveness. Each dimension is assessed using three mood adjectives, resulting in a total of nine items. The mood adjectives used to measure burnout were derived from the theoretical frameworks of Maslach and colleagues (1996; 1997), Demerouti and colleagues (2001), Shirom (2003b; 2006), and Watson and Clark (1994). The work engagement subscale used in the thesis consists of two dimensions: vigor and dedication. Initially an additional dimension was included, absorption. The evaluation of the scale showed, however, that this dimension was psychometrically unsound and it was therefore removed from the scale. Each dimension is assessed using three mood adjectives, resulting in a total of six items. The mood adjectives used to measure work engagement were derived from the theoretical frameworks of Schaufeli and Bakker (2003), and Watson and Clark (1994). The items of the two subscales are presented in Table 4 along with the Cronbach's alpha of the dimensions and the aggregated subscales at each wave of measurement.

A revised version of the SWEBO has been developed including a new dimension of the work engagement subscale called attentiveness, consisting of four items. The revised version of the SWEBO has been psychometrically evaluated with satisfactorily results. The reason why the revised version was not used in the thesis was that data were only available from two waves of measurement. The correlation between the revised version and the version used in the thesis was .95 at T2 and .94 at T3. The original version and the revised version of the scales are presented in Appendix I. For a more thorough description of the revised version of the SWEBO and the psychometric evaluation see Hultell and Gustavsson (2010a).

Table 4

Description of the items in the SWEBO and Cronbach's alpha for each dimension and the two aggregated subscales

Item Dimension Aggregated scale	T1 α	T2 α	T3 α
In the past two weeks at work I have felt:			
Energetic (Vig1)			
Determined (Vig2)			
Active (Vig3)			
Vigor	.74	.76	.76
Lethargic (Exh1)			
Indecisive (Exh2)			
Exhausted (Exh3)			
Exhaustion	.80	.80	.81
In the past two weeks, in relation to my work I have felt a sense of:			
Pride (Ded1)			
Dedication (Ded2)			
Inspiration (Ded3)			
Dedication	.83	.82	.85
Indifference (Diseng1)			
Meaninglessness (Diseng2)			
Resignation (Diseng3)			
Disengagement	.85	.84	.87
Unfocused (Inat1)			
Restless (Inat2)			
Easily distracted (Inat3)			
Inattentiveness	.81	.77	.81
Work engagement	.84	.85	.86
Burnout	.91	.89	.91

Additional independent variables included in the papers of the thesis are presented in Table 5. Table 5 contains information about the variables assessed, number of items used to assess the variable, sample item, source, range, and which paper the variables were included in. More detailed information about descriptive statistics and psychometric properties of the variables is presented in the papers.

Table 5

Description of variables included in the papers of the thesis

Type of variable Variable	N Items	Sample Item	Source	Range	Included in Paper
Outcome variables					
Burnout	9	In the past two weeks at work I have felt exhausted.	(Hultell & Gustavsson, 2010b)	1-4	I, II, III, IV
Work engagement	6	In the past two weeks at work I have felt energetic.	(Hultell & Gustavsson, 2010b)	1-4	I, II, III, IV
Health-related variables					
Depression	9	During the last two weeks, how much of the time have you felt that life is not worth living?	(Bech, Rasmussen, Olsen, Noerholm, & Abildgaard, 2001)	1-4	IV
Self-Rated Health	1	How would you rate your general health status?	-	1-5	II, IV
Neck or shoulder pain	1	Have you experienced any of neck or shoulder pain during the last four weeks?	-	1-4	IV
Performance-Based Self-Esteem	4	At times, I have to be better than others to be good enough myself.	(Hallsten, Josephson, & Torgén, 2005)	1-5	IV
Life satisfaction		I am satisfied with my life.	(Diener, Emmons, R.J., & Griffin, 1985)	1-5	IV
Educational					
Achievement of educational goals	6	To what extent have your education contributed to achieving work-related knowledge and skills?	(Kuh, et al., 2001).	1-4	II, IV
Spillover studies to family	1	Do your studies affect your family/private life negatively?	-	1-4	IV
Satisfaction with education	1	How would you rate your education?	-	1-4	IV
Pressured by studies	1	To what extent do you currently feel pressured by your studies?	-	1-4	IV
Pressured by occupational choice	1	To what extent do you currently feel pressured by your occupational choice?	-	1-4	IV
Stress and psychological strain/burnout	11	Derogatory way	(Demerouti, et al., 2001)	1-4	II
Life situation					

Type of variable Variable	N Items	Sample Item	Source	Range	Included in Paper
Steady relationship (1=Yes)	1	-	-	0-1	II
Own children (1=Yes)	1	-	-	0-1	IV
Spillover family to work	4	Problems at home keep me from doing a good job at work.	(Curbow, McDonnell, Spratt, Griffin, & Agnew, 2003)	1-5	II
Spillover work to family	3	Problems at work make it hard for me to relax at home.	(Curbow, et al., 2003)	1-5	II, III
Employment demographics					
Employer (1=Public)	1	-	-	0-1	II
Employment hours (1=Full time)	1	-	-	0-1	II
Class size	1	How many students are there usually in the class you teach?	-	1-7	II
Teaching subject match	1	To what extent do you teach the subjects which you are trained to teach?	-	1-4	II
Age of students (1=Younger)		-	-	0-1	II, IV
Induction (1=Yes)		-	-	0-1	II, IV
Mentor (1=Yes)	1	-	-	0-1	II
Job demands					
Unmet expectations	3	Generally, this job is not what I thought it would be.	(Lait & Wallace, 2002)	1-5	II, III, IV
Routinization	4	To what extent does your job require that you do the same things over and over again?	(Price, 1997)	1-5	II
Work load	7	It often seems like I have too much work for one person to do.	(Sverke & Hellgren, 2002)	1-5	II
Role stress	7	I know what my responsibilities are.	(Sverke & Hellgren, 2002)	1-5	II
Social isolation	4	I feel isolated by my colleagues.	(Russell, 1996)	1-5	II
Passive coping style	4	I avoided thinking of doing anything about the situation.	(Tobin, Holroyd, Reynolds, & Wigal, 1989)	1-5	II

Type of variable Variable	N Items	Sample Item	Source	Range	Included in Paper
Teacher self-efficacy (studies)	10	Do you think you will have the capacity to motivate students who show a lack of interest in school work?	Study specific scale	1-11	IV
Job demands					
Teacher self-efficacy (employment)	12	Do you have the capacity to motivate students who show a lack of interest in school work?	Study specific scale	1-11	II
Mastery of skills	3	Are you content with the quality of the work you do?	(Dallner, et al., 2000)	1-5	II, III
Autonomy	4	I can make my own decisions on how to organize my work.	(Sverke & Sjoberg, 1994)	1-5	II
Social support colleagues	2	If needed, can you get support and help with your work from your coworkers?	(Dallner, et al., 2000)	1-5	II
Social support supervisor	3	If needed, can you get support and help with your work from your immediate superior?	(Dallner, et al., 2000)	1-5	II
Pay satisfaction	1	I feel satisfied with my present amount of pay.	-	1-5	II
Active coping style	4	I worked on solving the problems in the situation.	(Tobin, et al., 1989)	1-5	II
Work-related consequences					
Turnover intention job	3	I am actively looking for other jobs.	(Sjöberg & Sverke, 2000)	1-5	IV
Turnover intention occupation	1	Do you think you will be working as a teacher in five years?	-	1-3	II

3.4 DATA ANALYSES

A range of data analyses were used in the papers included in the thesis. The data analyses were chosen to best fit the purpose of the specific study. In all studies a *p*-value of maximum .05 was used to judge statistical significance (Glass & Hopkins, 1995). The main analyses used are briefly summarized in the following paragraph, and more detailed information about the data analyses is presented in the sections 3.4.1, 3.4.2, 3.4.3, and 3.4.4.

In Paper I confirmatory factor analysis (CFA) was used to evaluate the measurement model of the SWEBO. In Paper II and hierarchical regression analysis was used to

assess the relative influence of the chosen independent variables on levels of burnout and work engagement. In Paper III path analysis was used to study the longitudinal relationships of unmet expectations, mastery of skills, and spillover with burnout and work engagement. Logistic regression analysis was used to perform the attrition analyses in Paper II and Paper III. In Paper IV cluster analysis, repeated measure analysis of variance (rANOVA), and χ^2 analysis were used. A repeated measures logistic regression analysis was used to perform the attrition analysis in Paper IV.

3.4.1 Paper I

Factor analysis has been extended by the development of confirmatory factor analysis (CFA) and structural equation modelling (SEM). Assumptions made by classical test theory have been addressed and made testable within this framework (Brown, 2006; McDonald, 1999). The measurement model tested in the present study was the common factor model in which correlations among a specific set of indicators (the items) are explained by their common association to the specific latent factor (the scale). After common variance has been extracted there should be no correlations present among the items. In addition, when testing a measurement model that consists of several "scales" (which is the case here), indicators should be related only to their postulated latent factor, and there should be no residual correlations among the indicators not accounted for by the latent factor. A confirmatory factor analysis was performed to test whether the postulated scales of the burnout section and the work engagement section of the SWEBO could be confirmed from associations among the items. A robust method (taking few response categories, as well as skewed data into account) for the estimation of covariances and parameters in the measurement model was used, following a procedure outlined by Jöreskog (Jöreskog, 2004). In short, polychoric correlations were estimated and rescaled into a polychoric covariance matrix. Furthermore, parameters in the measurement model were estimated using the weighted least square (WLS) method. 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 nested 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.

The SWEBO was also tested for measurement invariance across occupation and age. Although it would be relevant to evaluate measurement invariance across sex this was not done since the proportion of females in the sample was too large. The sample was divided into two age groups in order to test for measurement invariance across age. The first age group (n = 1,180) consisted of participants who were 29 years old or younger and the second age group (n = 1,086) consisted of participants who were 30 years old or older. The multi-group analysis was carried out following the best practice

recommendations by Brown (2006). In the first step, CFA was performed for each subgroup in order to test the hypothesis of the suggested factor structure of respective measurement model of the SWEBO (i.e., burnout and work engagement). In the second step, multi-groups CFA was performed in order to test the hypothesis of equal factor structure (configural invariance). In the third step the factor loadings are restricted to be invariant across the different subgroups in order to test the hypothesis of equal factor loadings (metric invariance). In the fourth and final step the item intercepts were set to be invariant in order to test the hypothesis of equal item intercepts (scalar invariance). The goodness of the model fit was evaluated using two criteria as further constraints were added in the four steps. The first criterion was that the fit indices should meet the criteria for satisfactory model fit suggested by Hu and Bentler (1999). The second criterion was that the ΔCFI between the different steps was smaller or equal to -.01 in accordance with the recommendations of Cheung and Rensvold (2002).

3.4.2 Paper II

Two hierarchical multiple regression analyses were performed, one with burnout as the outcome variable and the other with work engagement as the outcome variable. This was done in order to determine the relative influence of the different predictors and to study the increment in R^2 for each of the eight blocks of predictors. A *p*-value of maximum 0.05 was used to judge statistical significance. Tolerance values below .40 were judged to be indicators of problematic multicollinearity among the predictors (Allison, 1999). The sequence for adding blocks of predictors was based on their temporal order of appearance. This since it is more likely that preceding experiences and individual characteristics will affect following rather than the opposite. The blocks were thus added in the following order: (1) demographic, (2) educational, (3) organizational demographic, (4) workplace introduction, (5) life situation, (6) job demands, and (7) job resources.

3.4.3 Paper III

After examining the data regarding normality it was found that the variables deviated from normality, and the Yuan-Bentler correction for non-normality (Yuan & Bentler, 2000) was thus 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. The additional fit indices were the same as the ones included in Paper I (i.e., the RMSEA, the SRMR, and the CFI) and the same cutoff values were also the same. For a more detailed description see section 3.4.1. When using MLR as method of estimation the MLR produced χ^2 difference between two nested models is not distributed as the regular χ^2. It was thus necessary to use the scaled difference in χ^2 (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. Two specific indirect effects were added for each predictor, the first was via the outcome variable at T1, and the second was via the predictor at T2.

Three question 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)? In order to answer the questions of interest, four autoregressive models were tested using path analysis. 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 the 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 within which the additional three models were nested 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.

3.4.4 Paper IV

A univariate repeated-measures analysis of variance (rANOVA) was used in order to study within-group changes of burnout levels across the first three years of work life. In addition to just examining changes across all three years, post-hoc pair-wise comparisons between T1 and T2 and between T2 and T3 were also analyzed. Test-retest correlations were used to assess rank order stability.

In order to identify and classify individuals with similar developmental trajectories a cluster analysis was performed using SLEIPNER 2.1 (Bergman & El-Khouri, 2002). Initially data were scanned for outliers who potentially could distort the clustering procedure using the RESIDUE module of SLEIPNER. Next the cluster analysis was performed using Ward's hierarchical method. This clustering method was chosen based on its ability to adequately recover true cluster belonging and consistently replicate clustering (Breckenridge, 2000). Three stoppage rules were applied when choosing the cluster solution. Firstly, based on the recommendations of Bergman, Magnusson and El-Khouri (2003) the explained error sums of squares (EESS) should not be smaller than .67. Secondly, the homogeneity coefficients for respective cluster should not exceed 1.0 (Bergman, et al., 2003). Thirdly, the merging of two clusters should be comprehensible and make theoretical sense. Since the clustering method chosen was

hierarchical this could result in that some individuals end up in clusters in which they did not optimally belong. This in turn impairs both the EESS of the cluster solution and the homogeneity of the clusters. In order to correct for this potential misplacing of individuals the RELOCATE module of SLEIPNER was used to move individuals from one cluster to another where they were better fitting. In order to validate the chosen cluster solution it was examined whether the original data explained significantly more variance compared to randomly generated data sets (i.e., testing a null hypothesis of no relations in the data). Based on the original data set, 20 random data sets were generated and EESS of the chosen cluster solution were compared to the EESS of the same cluster solution for the random data sets, using the SIMULATE module of SLEIPNER. After validating the cluster solution, the centroids of the different clusters were used to perform a K-means cluster analysis on the total sample (including the cases removed from the cluster analyses) in order to assign cluster membership for all participants.

A two-way rANOVA (cluster x time) was then performed in order to see whether there was a difference in change across time between the identified clusters. This was done in order to confirm that the clusters actually represented different trajectories. Next univariate rANOVAs were performed to study change over time within each cluster. In order to further validate and to better understand the cluster solutions the different classification of trajectories were compared using the additional explanatory variables. The purpose was to see how a change in the outcome variables corresponded to a concurrent change in an explanatory variable. Two-way rANOVAs (cluster x time) were performed to study if there were differences in change between the clusters for each explanatory variable. Univariate rANOVAs were then performed for each cluster, studying change across time for the explanatory variables. This was done in order to see if the changes between the clusters in change of burnout would be reflected in similar changes in the explanatory variables. Since the outcome variables and the explanatory variables were not all measured on the same scale, *z*-scores were calculated and calibrated in relation to the measurements during the first year of work life.

χ^2 analyses were performed in order to study whether the clusters differed regarding demographics, indicators of health, educational outcomes, and organizational conditions. Nearly all predictors were assessed during the final year of education. The idea was to study if cluster belonging could be predicted using variables assessed while the participants were still teacher students, and if it was possible to identify any effects of age of the students and induction programs.

3.4.5 Statistical programs

LISREL 8.80 (Jöreskog & Sörbom, 2006) was used to evaluate the fit of the measurement model of the SWEBO and to test for measurement invariance across occupation and age in Paper I. NORM 2.03 (Schafer, 1999) was used to perform the multiple imputations in Paper II. Mplus 6 (Muthen & Muthen, 2010) was used to perform the path analyses in Paper III. SLEIPNER 2.1 (Bergman & El-Khouri, 2002) was used to perform the cluster analysis in Paper IV. SPSS was used to perform all other statistical analyses. SPSS 15 (2006) was used in Paper I and Paper II, SPSS 18 (SPSS Inc, 2009) was used in Paper III and Paper IV.

3.5 ETHICAL CONSIDERATIONS

The participants were all informed about the purpose of the study, that participation was voluntary and that they were free to terminate their participation at any time. By responding to the first questionnaire the participants gave their informal consent to participate in the study. Those who did not respond to the first questionnaire were thus not included in the study and did not receive any more questionnaires.

After each data collection was completed, the social security numbers and coded identification numbers of the participants were saved on a secure server at Statistics Sweden. The social security numbers of the participants were used to identify their current address at the time of each data collection, and for collection of additional register data (e.g., demographic variables). The questionnaire data were stored for no longer than three months at Statistics Sweden.

All participants were anonymous and the research group only received data files with coded identification numbers so that the participants could be traced longitudinally in the data sets. The data are stored on a secure server at Karolinska Institutet and are only accessible to members of the research group. The CDs containing the original data files are kept in a fire-proof safe at Karolinska Institutet.

Ethical approval to perform the study was given by the Research and Ethics Committee at Karolinska Institutet (01-045; 04-587), and the Regional Ethical Review Board in Stockholm (2006/973-32; 2005/1135-31; 2005/1532-32; 2005/321-32).

4 RESULTS

Before presenting the results of the papers, some additional results about the teachers will be presented. Firstly, information about the number of teachers employed and their employment conditions will be presented along with information about the teachers not in employment and their reported reasons for not working. Secondly, the mean levels and prevalence of burnout and work engagement at waves T1, T2, and T3 will be presented. The aim of this was to give an overview of the cohort in the PATH study.

Finally, the results of the papers will be presented. In addition to the study results, mean levels and prevalence of burnout and work engagement will be presented. In the presentation of Paper I, the teachers will be compared to the nurses included in the study regarding levels and prevalence. In the presentation of Papers II, III, and IV, results will be given for the complete sample of the respective study and for the two subgroups of teachers (younger students and older students). The subgroups of teachers will also be compared regarding levels, prevalence, and changes in levels in order to see if these are the same regardless of the age of the students.

4.1 INFORMATION ABOUT EMPLOYMENT

Of the responding teachers, approximately four in five reported that they were working as a teacher at the time of each data collection after graduation. More than 80% of the responding teachers were working in public schools. The ratio of teachers with permanent employment contracts were just above 50% at T1 but then increased and was almost 80% at the final wave of measurement. The number of teachers who worked full time ranged from 75.7% to 79.1% and peaked at T2. Information about the employment of the teachers who were working as a teacher at the time of the data collection is presented in Table 6 and Table 7.

Table 6

Number of teachers who were currently working as a teacher and their employment demographics

	T1 (%)	T2 (%)	T3 (%)
Currently working as a teacher	80.0	78.6	79.0
Type of employer			
Public school	84.3	82.4	81.7
Private school	15.7	17.6	18.3
Type of employment			
Permanent	53.0	67.1	78.9
Temporary	47.0	32.9	21.1
Hours of Employment			
Full time	77.0	79.1	75.7
Part time	23.0	20.9	24.3

N_{T1} = 1,748, N_{T2} = 1,668, N_{T3} = 1,510

Table 7

Number of teachers broken down according to age of students, who were currently working as a teacher and their employment demographics

	Younger students (%)			Older students (%)		
	T1	T2	T3	T1	T2	T3
Currently working as a teacher	81.3	79.0	80.2	76.3	77.4	76.0
Type of employer						
Public school	87.2	85.8	85.7	75.6	73.4	71.3
Private school	12.8	14.2	14.3	23.4	26.6	28.7
Type of employment						
Permanent	58.5	71.9	81.2	36.7	54.6	72.8
Temporary	41.5	28.1	18.8	63.3	45.4	27.2
Hours of employment						
Full time	78.5	79.6	76.6	72.5	77.9	73.3
Part time	21.5	20.4	23.4	27.5	22.1	26.7

Younger students: N_{T1}=1,280, N_{T2}=1,198, N_{T2}=1,077

Older students: N_{T1}=468, N_{T2}=470, N_{T3}=433

At each wave of measurement about 20% reported that they were not working as a teacher. The top reason for not working as a teacher at each wave was parental leave. Information about the number of teachers, not working as a teacher at the time of the data collection, who had not worked as a teacher since graduating and their main reasons for not working as a teacher at each data collection is presented in Table 8 and Table 9.

Table 8

Number of participants not currently working as a teacher, who had not worked as a teacher since graduation, and their main reasons for not currently working as a teacher

	T1 (%)	T2 (%)	T3 (%)
Not currently working as a teacher	20.0	21.4	21.0
Not having worked as a teacher since graduating	63.1	30.7	4.8
Main reason for not currently working as a teacher			
Parental leave	24.9	47.6	50.5
Studying	23.4	6.7	2.8
Unemployed	12.9	4.5	12.6
Employed but not as a teacher	17.1	17.6	12.6
Sick leave	1.7	2.5	2.2
Left the teaching occupation	1.4	4.5	9.8
Other reason	7.1	7.3	4.1
No reason given	11.4	9.2	5.4

N_{T1} = 350, N_{T2} = 357, N_{T3} = 317

Table 9

Number of teachers broken down according to age of students, not currently working as a teacher, who had not worked as a teacher since graduation, and their main reasons for not currently working as a teacher

	Younger students (%)			Older students (%)		
	T1	T2	T3	T1	T2	T3
Not currently working as a teacher	18.7	21.0	19.8	23.7	22.6	24.0
Not having worked as a teacher since graduating	60.8	25.6	5.7	68.2	42.7	2.9
Main reason for not currently working as a teacher						
Parental leave	29.7	56.2	55.9	14.4	27.4	39.4
Studying	21.8	3.6	0.9	27.0	14.1	6.7
Unemployed	10.9	2.8	11.3	17.1	8.5	15.4
Employed but not as a teacher	16.3	15.5	11.3	18.9	22.6	15.4
Sick leave	2.5	2.4	1.4	-	2.8	3.8
Left the teaching occupation	-	3.2	8.5	4.5	7.5	12.5
Other reason	7.9	8.4	5.1	5.4	4.7	1.9
No reason given	10.9	8.8	5.6	12.6	12.3	4.8

Younger students: $N_{T1} = 239$, $N_{T2} = 251$ $N_{T3} = 213$

Older students: $N_{T1} = 111$, $N_{T2} = 106$ $N_{T3} = 104$

4.2 LEVELS AND PREVALENCE OF BURNOUT AND WORK ENGAGEMENT

Before presenting the prevalence of burnout and work engagement, it is necessary to address the issue that the SWEBO is a new instrument and has not been validated in relation to a sample diagnosed as suffering from burnout. Consequently, there are no well based cut-off values for categorizing individuals, which makes interpretation of the levels somewhat difficult. Considering the response format and the pathological nature of the adjectives included in the burnout scale it seems reasonable to use the following categorization: ≤1.49 (majority of responses Not at all) as non-burnout cases, 1.50-1.99 (majority of responses vary between Not at all and Some of the time) as moderately low, 2.00-2.49 (majority of responses vary between Some of the time and Most of the time) as moderately high, and ≥2.50 (half or majority of responses are Most of the time or All of the time) as burnout cases. For the work engagement scales the following categorization was used: ≤2.00 as non-engaged (majority of responses vary between Not at all and Some of the time), 2.01-2.74 as moderately low (majority of responses vary between Some of the time and Most of the time), 2.75-3.49 moderately high (majority of responses are Most of the time), and ≥3.50 as highly engaged (half or majority of responses are All of the time). These are, however, arbitrary cut-off values and future studies are needed to establish more validated ones.

The mean levels of burnout are fairly low throughout the first three years of employment, ranging from 1.61 to 1.68, and thus being on average categorized as moderately low. The largest difference in levels of burnout was .13 (Cohen's *d*). The mean levels indicate that the levels of burnout successively increase over time, but the increases are small and the mean levels remain quite stable. When looking at the prevalence of burnout it is evident that the majority of the teachers did not suffer from burnout. Of the four categories, the group of non-burnout cases was clearly the largest, and less than 8% being categorized as suffering from burnout. However, approximately one in five had moderately high levels of burnout at each wave, and the number of individuals with moderately high levels of burnout or suffering from burnout increases over time and is nearly 30% after three years of employment. The mean levels and prevalence of burnout measured with the SWEBO are presented in Table 10.There were no significant differences in mean levels or prevalence of burnout between teachers working with younger student and teachers working with older students at T1, $t(1450) = 0.73$, $p = .468$; $\chi^2(3) = 3.26$, $p = .353$, at T2 $t(1434) = 0.57$, $p = .569$; $\chi^2(3) = 2.90$, $p = .407$, or at T3, $t(1211) = 0.88$, $p = .468$; $\chi^2(3) = 0.511$, $p = .916$. Furthermore, no significant differences were found in mean levels or prevalence of burnout between teachers employed in public schools and teachers employed in private schools at T1, $t(1442) = 0.99$, $p = .321$; $\chi^2(3) = 1.36$, $p = .714$, or at T2, $t(1420) = 0.64$, $p = .523$; $\chi^2(3) = 0.77$, $p = .856$. However, although no significant difference in mean levels of burnout was found at T3, $t(1207) = 0.10$, $p = .917$, there was a significant difference in prevalence of burnout, $\chi^2(3) = 7.78$, $p = .051$. It was found that teachers with a private employer had a higher prevalence of burnout and lower prevalence of moderately low burnout.

Table 10

Mean levels and prevalence of burnout assessed with the SWEBO and the OLBI

Wave	*N*	*M* (*SD*)	Non-burnout	Moderately low	Moderately high	Burnout
SWEBO						
T1	1,452	1.61 (0.53)	50.6%	24.4%	17.6%	7.5%
T2	1,436	1.65 (0.48)	43.8%	29.1%	20.6%	6.5%
T3	1,213	1.68 (0.52)	43.5%	26.9%	21.9%	7.7%
OLBI						
T1	1,485	2.03 (0.63)	55.9%	25.4%	11.7%	7.0%
T2	1,503	2.05 (0.62)	63.3%	19.5%	10.7%	6.5%
T3	1,266	2.09 (0.63)	60.3%	21.2%	10.1%	8.4%

In addition to just presenting levels and prevalence of burnout and work engagement assessed by the SWEBO, levels and prevalence of burnout assessed by the OLBI are also presented. Bivariate correlations of the two scales are additionally presented. This allows for a comparison of the SWEBO with a more established and more widely studied burnout measure. The mean levels of burnout assessed with the OLBI also

increased over time, but, as with the burnout scores of the SWEBO, the increases were small and the levels remained stable and ranged from 2.03 to 2.09. The categories used to assess the prevalence of burnout were based on the recommendations and findings of Gustavsson, Hallsten and Rudman (2010). The mean levels and prevalence of burnout measured with the OLBI are presented in Table 10. When comparing the prevalence, there was approximately the same number of burnout cases, but about 10% more were categorized as having moderately low levels of burnout or as non-burnout cases. It is, however, difficult to speculate what this means. As mentioned previously, the cutoff values of the SWEBO is arbitrary and this is perhaps an indication that they need to be adjusted. Perhaps of greater interest, at least from a validation perspective, are the correlations between the two scales. The results show that the two scales were highly correlated, indicating that they appear to measure the same construct, and hence adding validity to the SWEBO. The correlations are presented in Table 11.

Table 11

Bivariate correlations between burnout scores assessed with the SWEBO and the OLBI at T1, T2, and T3.

Wave	OLBI T1	OLBI T2	OLBI T3
SWEBO BO T1	.77*		
SWEBO BO T2		.76*	
SWEBO BO T3			.76*
SWEBO WE T1	-.65*		
SWEBO WE T2		-.61*	
SWEBO WE T3			-.63*

*$p < .001$; BO $N_{T1} = 1,452$, $N_{T2} = 1,430$, $N_{T3} = 1,205$; WE $N_{T1} = 1,455$, $N_{T2} = 1,431$, $N_{T3} = 1,205$

Table 12

Mean levels and prevalence of work engagement assessed with the SWEBO

Wave	*N*	*M* (*SD*)	Non-engaged	Moderately low	Moderately high	Highly engaged
T1	1,455	2.95 (0.48)	5.6%	21.7%	59.0%	13.7%
T2	1,436	2.91 (0.46)	6.0%	21.6%	60.9%	11.5%
T3	1,213	2.89 (0.47)	6.3%	23.7%	59.4%	10.6%

The mean levels of work engagement were quite high at each wave of measurement and on average would be categorized as being moderately high. The levels decreased somewhat over time, but, as for burnout, the changes were small and overall the mean levels were stable. Concerning the prevalence, the results show that approximately 70% had moderately high or high levels of work engagement, and that about 6% at each wave were categorized as being non-engaged in their work. The mean levels and prevalence are presented in Table 12. There were no significant differences in mean

levels or prevalence of work engagement between teachers working with younger students and teachers working with older students at T1, $t(1453) = 0.21$, $p = .835$; $\chi^2(3) = 1.76$, $p = .624$, at T2, $t(1434) = 1.12$, $p = .264$; $\chi^2(3) = 0.35$, $p = .950$, or at T3, $t(1211) = -1.49$, $p = .136$; $\chi^2(3) = 6.51$, $p = .089$. Moreover, no significant differences were found in mean levels or prevalence of work engagement between teachers employed in public schools and teachers employed in private schools at T1, $t(1445) = 0.04$, $p = .972$; $\chi^2(3) = 4.74$, $p = .192$, at T2, $t(1420) = 0.74$, $p = .457$; $\chi^2(3) = 3.03$, $p = .387$, or at T3, $t(1207) = 0.26$, $p = .797$; $\chi^2(3) = 1.68$, $p = .641$. Recently it has been argued that the OLBI can also be used for measuring work engagement (Bakker, et al., 2008), and it was therefore of interest to study the correlations between the work engagement subscale of the SWEBO and the OLBI. The results showed that work engagement assessed with the SWEBO was rather strongly and negatively related to the OLBI, and that the correlations were somewhat weaker compared to the ones between burnout and the OLBI. The correlations are presented in Table 11.

4.3 PAPER I

When comparing the nurses and the teachers with regard to the mean levels of burnout, it was found that the nurses had significantly higher mean levels of burnout, $t(2264) = -2.918$, $p < .001$. The difference was, however, only -0.116 (Cohen's *d*), which is considered to be a small effect size (Cohen, 1988). Regarding the prevalence there was a significant difference, $\chi^2(3) = 20.12$, $p < .001$ between the nurses and the teachers. There were fewer nurses categorized as non-burnout, and more nurses categorized as having moderately high levels of burnout. The levels and prevalence of burnout are presented in Table 13.

Table 13
Mean levels and prevalence of burnout

Occupation	*N*	*M* (*SD*)	Non-burnout	Moderately low	Moderately high	Burnout
Complete sample	2,266	1.62 (0.51)	48.1%	25.2%	20.1%	6.6%
Teachers	1,316	1.60 (0.52)	51.3%	24.5%	17.3%	6.9%
Nurses	950	1.66 (0.51)	43.6%	26.2%	24.0%	6.2%

Not surprisingly, the nurses also had lower levels of engagement compared to the teachers, $T(2264) = 5.680$, $p < .001$. The difference was 0.247 (Cohen's *d*), which is considered to be a small effect size (Cohen, 1988). The nurses and teachers also differed regarding the prevalence of work engagement, $\chi^2(3) = 24.00$, $p < .001$. There were fewer nurses categorized as having moderately high levels of work engagement, and more categorized as having moderately low levels, and being non-engaged. There was no significant difference regarding the number of nurses and teachers categorized as highly engaged. The levels and prevalence of work engagement are presented in Table 14.

Table 14
Mean levels and prevalence of work engagement

Occupation	*N*	*M* (*SD*)	Non-engaged	Moderately low	Moderately high	Highly engaged
Complete sample	2,266	2.91 (0.48)	6.3%	24.4%	56.4%	13.0%
Teachers	1,316	2.96 (0.47)	5.4%	21.3%	59.3%	14.1%
Nurses	950	2.84 (0.50)	7.6%	28.6%	52.3%	11.5%

4.3.1 Study results

The reliability scores ranged from .58 to .84 for the six dimensions of the SWEBO. Absorption was the dimension with the lowest reliability score (.58). This dimension, however, was later removed from the measurement model of work engagement, and the reliability scores of the dimensions that remained in the model ranged from .77 to .84, and were thus all greater than the recommended cutoff value of .70 (Streiner, 2003). The overall reliability score of the burnout instrument was .90, and the overall reliability score for the revised work engagement instrument was .84.

Two models were used to test the fit of the hypothesized measurement model of burnout: the hypothesized model and a model for comparison. The hypothesized model was a three-factor model (where the factors were exhaustion, disengagement and inattentiveness). The comparison model was a unidimensional model with one latent factor that explained the common variance among all of the burnout items. The results show that the comparison model did not fit the data and that the hypothesized model for burnout not only had a better model fit than the comparison model but also that its overall fit was satisfactory (χ^2 = 138.66; RMSEA = .046; SRMR = .051; CFI = .99). The correlation between exhaustion and disengagement was .87, between exhaustion and inattentiveness was .83, and between disengagement and inattentiveness was .78. The factor loadings for all items were significant and in the expected direction: they ranged from .74 to .92. The results of the multi-group analysis showed that the burnout instrument was invariant across both occupation and age. The fit indices all indicated proper model fit in each step of the analysis and the difference in the CFI between each step of the analysis were smaller than -.01. The factor structure of the comparison model and the hypothesized model are presented in Figure 3, and the results of the CFAs are presented in Table 15.

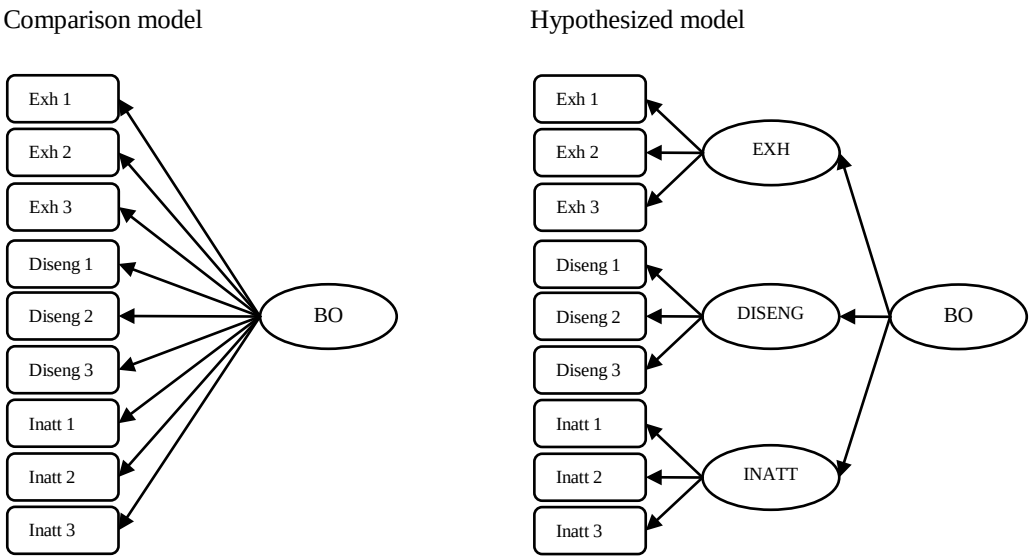

Figure 3

Factor structures of the comparison model and hypothesized model of the burnout scale

Two models were used to test the fit of the hypothesized measurement model of work engagement: the hypothesized model and a model for comparison. The hypothesized measurement model for work engagement was a three-factor model (where the three factors were vigor, dedication and absorption). The comparison model was unidimensional with one latent factor that explained all the common variance among the work engagement items. The hypothesized model for work engagement fit the data better than the unidimensional comparison model, but the fit was not satisfactory. Analysis of the results showed that the absorption dimension was the probable source of the poor fit. The absorption items appeared to suffer from multi-dimensionality. The absorption dimension of the model was removed and a revised measurement model of work engagement was reanalyzed following the same procedure, i.e., a unidimensional comparison model and the revised two-factor model. The revised model had a better fit than the comparison model, which did not fit the data, and had an overall satisfactory model fit (χ^2 = 58.78; RMSEA = .053; SRMR = .044; CFI = .99). The factor loadings for all items were significant and in the expected direction: they ranged from .75 to .92. The correlation between the two latent factors was .78. The results of the multi-group analysis showed that the work engagement instrument was invariant across occupation. When testing for invariance across age the results however showed that the RMSEA for was slightly too high when testing for configural and metric invariance, but satisfactory when testing for scalar invariance. The factor structure of the revised comparison model and the revised hypothesized model are presented in Figure 4, and the results of the CFAs are presented in Table 15.

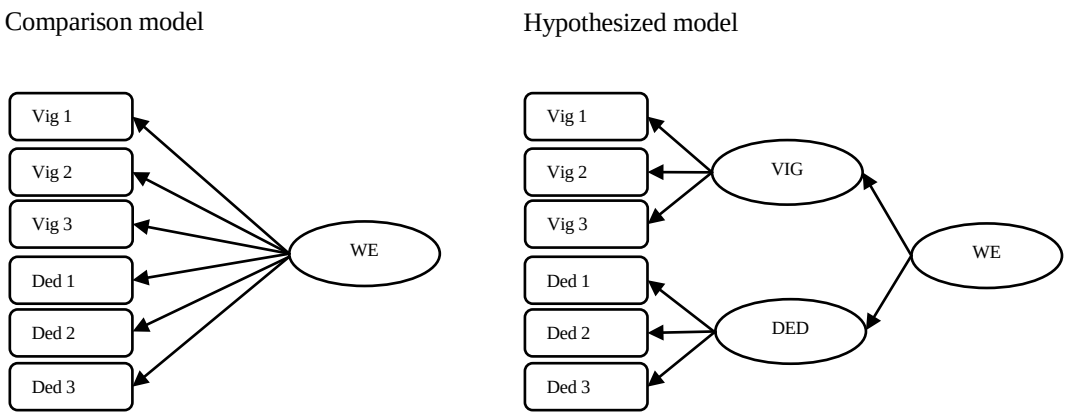

Figure 4

Factor structures of the revised comparison model and the revised hypothesized revised model of the work engagement scale

Both measurement models were analyzed in a single model in order to determine whether burnout and work engagement are two distinct constructs and not just the opposite sides of the same coin. Since the original measurement model of work engagement did not fit the data, the revised measurement model, which did not include the absorption dimension, was used instead. Four different measurement models were tested: the hypothesized model and three comparison models. The hypothesized model was a second-order model with two second-order factors: burnout and work engagement. The burnout factor explained the common variance among the three first-order factors (exhaustion, disengagement, and inattentiveness), and the three first order factors explained the common variance among their corresponding items. The work engagement factor explained the common variance among two first-order factors (vigor and dedication), and the first order factors explained the common variance among their corresponding items. The first comparison model was a unidimensional model with one first-order factor that explained all common variance among the items. The second comparison model had two first-order factors, one that explained the common variance among the burnout items and one that explained the common variance among the work engagement items. The third comparison model had three first-order factors, one that explained the common variance among the exhaustion and the vigor items, one that explained the common variance among the disengagement and the dedication items, and one that explained the common variance among the inattentiveness items. The hypothesized measurement model fit the data better than the three comparison models. The factor loadings were all significant and in the expected direction and ranged from .77 to .97. The correlation between the second order factors of burnout and work engagement was -.86. Since a correlation of this magnitude could imply that there was only one second-order factor a fourth comparison model was therefore analyzed post hoc to test this. The fourth model was identical to the hypothesized model regarding the first-order factors but only had one second-order factor explaining the common variance of the first-order factors. The results showed that this model had a poorer fit than the hypothesized model. The results of the CFAs are presented in Table 15.

Table 15
Results of the CFAs

	df	χ^2	RMSEA	SRMR	CFI
Burnout					
Comparison model	27	351.50	.073	.118	.96
Hypothesized model	24	138.66	.046	.051	.99
Work engagement					
Comparison model	27	854.56	.116	.212	.86
Hypothesized model	24	443.26	.088	.145	.93
Comparison model[a]	5	147.10	.112	.083	.96
Revised model[a]	8	58.78	.053	.044	.99
SWEBO					
Comparison model 1[a]	90	929.45	.064	.217	.94
Comparison model 2[a]	89	702.19	.055	.158	.95
Comparison model 3[a]	87	678.21	.055	.174	.96
Comparison model 4[a]	85	496.60	.046	.128	.97
Hypothesized model[a]	84	378.37	.039	.093	.98

df, degrees of freedom; RMSEA, root mean-square error approximation of the mean; SRMR, standardized root mean-square residual; CFI, comparative fit index.
[a] Absorption removed from the measurement model.

4.4 PAPER II

In addition to the results of the study, the mean levels and the prevalence of burnout and work engagement for the two subgroups of teachers (younger students and older students) are compared. The results showed that levels of both burnout and work engagement were approximately the same regardless of the age of the students. T-tests also confirmed this for both burnout, $t(1288) = 0.464$; $p = .0643$, and for work engagement, $t(1288) = -0.672$; $p = 0.502$. This was also the case regarding the prevalence, and no differences were found for burnout, $\chi^2(3) = 3.47$, $p = .33$, or work engagement, $\chi^2(3) = 0.55$, $p = .91$. The levels and prevalence of burnout are presented in Table 16, and the levels and prevalence of work engagement are presented in Table 17.

Table 16
Mean levels and prevalence of burnout

	N	*M* (*SD*)	Non-burnout	Moderately low	Moderately high	Burnout
Complete sample	1,290	1.59 (0.51)	51.7%	24.4%	17.4%	6.5%
Younger students	963	1.59 (0.51)	52.0%	24.8%	16.3%	6.9%
Older students	327	1.60 (0.50)	50.8%	23.2%	20.5%	5.5%

Table 17
Mean levels and prevalence of work engagement

	N	*M* (*SD*)	Non-engaged	Moderately low	Moderately high	Highly engaged
Complete sample	1,290	2.96 (0.46)	5.0%	21.6%	59.3%	14.1%
Younger students	963	2.96 (0.47)	5.0%	21.6%	59.7%	13.7%
Older students	325	2.98 (0.46)	4.9%	21.7%	58.1%	15.3%

4.4.1 Study results

The first part of the study concerned the relative influence of the predictors on burnout was analyzed. A hierarchical regression analysis was performed in seven steps, adding an additional block of predictors in each step. All of the seven models were statistically significant. The first two blocks of predictors were assessed prior to entering work life. The predictors of these blocks accounted for 7.8% of the explained variance in burnout. The remaining blocks of predictors were assessed during work life. The predictors of these blocks accounted for an additional 43.8% of the explained variance in burnout. The block of predictors with the largest increment in R^2 was the life situation predictors. Job demands and job resources combined accounted for 19.5% of the explained variance in burnout. The predictors with the greatest relative influence on burnout were mainly related to work life (i.e., job demands and job resources).

The second part of the study concerned the relative influence of the predictors on work engagement was analyzed. Again, a hierarchical regression analysis was performed in seven steps, adding a block of predictors in each step of the analysis. The first model that analyzed the relative influence of the demographic predictors on work engagement was not statistically significant. The remaining six models of the analysis were all statistically significant. The first two blocks of predictors measured during education accounted for 6.6% of the explained variance in work engagement. The remaining blocks of predictors accounted for additional 37.1% of the explained variance in work engagement. Job demands was the block of predictors that had the largest increment in R^2. Job demands and job resources combined explained 22.5% of the variance in work engagement. The predictors with the greatest relative influence on work engagement were all related to work life.

4.5 PAPER III

No significant differences were found between the two subgroups of teachers in levels of burnout at T1, $t(1450) = 0.73$, $p = .47$, or at T2, $t(1434) = 0.57$, $p = .57$. Regarding the prevalence of burnout there were no differences between the subgroups of teachers at T1, $\chi^2(3) = 3.26$, $p = .35$, or at, T2 $\chi^2(3) = 2.90$, $p = .41$. Concerning the change in burnout levels between T1 and T2, the results show that there was a significant increase in burnout, $t(1081) = 3.64$, $p < .001$. When comparing the change in burnout levels the results show that there was a significant increase for the teachers working with younger students, $t(795) = 3.64$, $p < .001$, whereas there was no significant increase for the

teachers working with older students, $t(285) = 1.02$, $p = .31$. It thus appears that the overall change in burnout was mainly a result of the change for the teachers working with younger students. Mean levels and prevalence of burnout at each wave are presented in Table 18.

Table 18

Mean levels and prevalence of burnout

	N	*M* (*SD*)	Non-burnout	Moderately low	Moderately high	Burnout
T1						
Complete sample	1,452	1.61 (0.53)	50.6%	24.4%	17.6%	7.5%
Younger students	1,082	1.60 (0.53)	50.9%	24.8%	16.5%	7.8%
Older students	370	1.63 (0.54)	49.5%	23.2%	20.5%	6.8%
T2						
Complete sample	1,436	1.65 (0.48)	43.8%	29.1%	20.6%	6.5%
Younger students	1,051	1.64 (0.50)	44.2%	28.5%	20.2%	7.0%
Older students	385	1.66 (0.46)	42.6%	30.6%	21.8%	4.9%

No significant differences were found between the two subgroups of teachers in levels of work engagement at T1, $t(1453) = 0.21$, $p = .84$, or at T2, $t(1434) = 1.12$, $p = .26$. As for burnout, there were no differences between the two subgroups of teachers in prevalence of work engagement at T1, $\chi^2(3) = 1.76$, $p = .62$, or at T2, $\chi^2(3) = .35$, $p = .95$. There was an overall decrease in levels of work engagement between T1 and T2, $t(1081) = 3.52$, $p < .001$. Again, it was only the teachers working with younger students who changed significantly, $t(795) = 3.52$, $p < .001$, whereas the teachers who worked with older students did not change significantly, $t(285) = 1.08$, $p = .28$. Mean levels and prevalence of burnout at each wave are presented in Table 19.

Table 19

Mean levels and prevalence of work engagement

	N	M (*SD*)	Non-engaged	Moderately low	Moderately high	Highly engaged
T1						
Complete sample	1,455	2.95 (0.48)	5.6%	21.6%	59.0%	13.7%
Younger students	1,085	2.95 (0.47)	5.3%	21.5%	59.9%	13.3%
Older students	370	2.95 (0.49)	6.5%	22.2%	56.5%	14.9%
T2						
Complete sample	1,436	2.91 (0.46)	6.0%	21.6%	60.9%	11.5%
Younger students	1,051	2.90 (0.46)	6.1%	21.5%	61.2%	11.2%
Older students	385	2.93 (0.46)	5.7%	21.8%	60.3%	12.2%

4.5.1 Study results

Table 20 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). Even though the results showed that there was one significant cross-lagged effect of unmet expectations at T1 on burnout at T2, and that the normal causality model had a significantly better fit compared to the stability model, it did not have a good overall fit and therefore did not support the predictors having 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 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. This reversed causality model had a significantly better fit than the normal stability model and met the criteria for satisfactory model fit and hence supported burnout during the first year of employment having 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). 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 was a negative cross-lagged effect of unmet expectations on burnout at T2, indicating that high levels of unmet expectations at T1 actually led to a decrease in burnout. 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. The reciprocal model is presented in Figure 5.

One aspect that was surprising was the negative effect of unmet expectations at T1 on burnout at T2. The indirect effects, however, showed that there were positive associations between unmet expectations at T1 and burnout at T2. The total indirect effect was also greater compared to the direct effect, hence the total effect of unmet expectations on burnout at T2 was actually positive, indicating that high levels of unmet expectations T1 were associated with an increase in burnout. The additional indirect effects showed that high levels of spillover resulted in an increase of burnout, and that high levels of mastery of skills at T1 were associated with a decrease in burnout. These findings thus support the notion that the impact of the predictors at T1 on changes in burnout was mediated by burnout at T1. Hence, despite that there only was one significant direct cross-lagged effect it was apparent that the first-year experiences had an influence on the development of burnout. In the final model 52% of the variance in burnout at T2 was explained.

Table 20

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

Model	*df*	χ^2	Δdf	$\Delta\chi^2$	CFI	RMSEA (CI 90)	SRMR
$M1_{BO}$	12	120.805	-	-	0.963	0.068 (0.057-0.079)	0.077
$M2_{BO}$	9	106.263	3	14.166*	0.967	0.074 (0.062-0.087)	0.078
$M3_{BO}$	9	53.938	3	64.968*	0.985	0.051 (0.038-0.064)	0.030
$M4_{BO}$	6	40.517	3	13.386*	0.988	0.054 (0.039-0.071)	0.030

*, $p < .01$; *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.

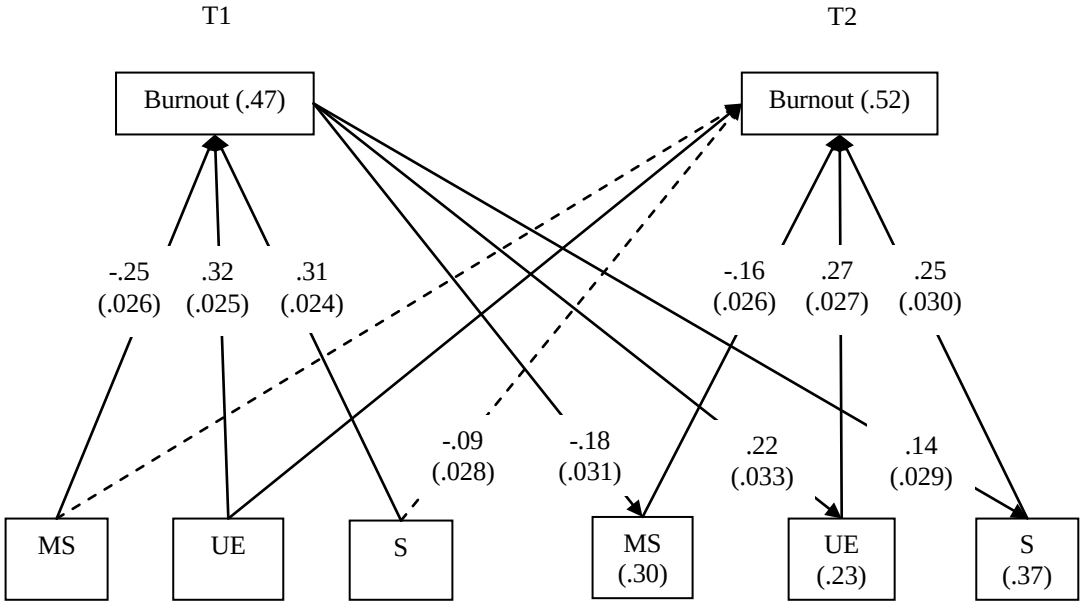

Figure 5

The reciprocal model of burnout, all parameter estimates *p*-values lower than .01. 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 (R^2) of the endogenous variables is presented in the parentheses of respective variable.

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

Table 21 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 there were no significant direct effects of any of the predictors at T1 on work engagement at T2. The fit indices also showed that the normal causality model did not fit the data significantly better than the stability model, and none of the two models met the criteria for satisfactory model fit. The results hence indicated that unmet expectations, mastery of skills and spillover at T1 did not have any direct impact on the development of work engagement. The second and the third question concerned whether work engagement affected the development of the predictors (i.e., the reversed causality model) and if there were reciprocal effects between work engagement and the predictors (i.e., the

reciprocal model). The results showed that the reversed causality model fitted the data significantly better compared to the stability model and met the criteria for satisfactory model fit. The parameter estimates showed that high levels of work engagement led to an increase in mastery of skills at T2 and a decrease in unmet expectations and spillover at T2. When including the cross-lagged effects of the predictors at T1 on work engagement at T2 (i.e., reciprocal effects) the model fit did not improve significantly and the reciprocal model was rejected in favor of the reversed causality model. The reversed causality model is presented in Figure 6.

Table 21

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

Model	*df*	χ^2	Δdf	$\Delta\chi^2$	CFI	RMSEA (CI 90)	SRMR
$M1_{WE}$	12	103.243	-	-	0.965	0.062 (0.052-0.074)	0.071
$M2_{WE}$	9	95.676	3	6.999	0.967	0.070 (0.058-0.083)	0.072
$M3_{WE}$	9	73.565	3	29.371*	0.975	0.061 (0.048-0.074)	0.042
$M4_{WE}$	6	66.926	3	7.621	0.977	0.072 (0.057-0.088)	0.043

*, $p < .01$; *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.

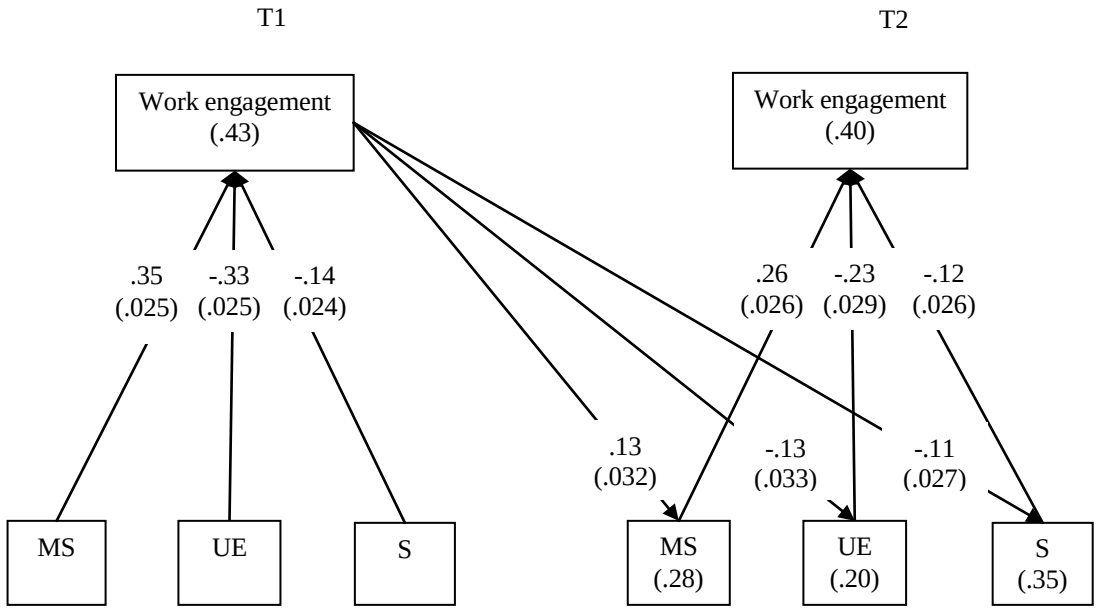

Figure 6

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 below each estimate. Explained variance (R^2) of the endogenous variables is presented in the parentheses of respective variable.

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

Although there were no significant direct cross-lagged effects from the predictors at T1 on work engagement at T2, the reversed causality model still supports the notion of a spiral-like development of work engagement. The predictors at T1 affected work

engagement at T1 which in turn affects changes in the predictors at T2 which ultimately affect work engagement at T2. Furthermore, the results showed that there were significant indirect effects that were mediated by work engagement at T1 indicating that the predictors still affected the development of work engagement. High levels of unmet expectations and spillover at T1 indirectly lead to a decrease in work engagement, whereas high levels of mastery of skills at T1 indirectly lead to an increase. It thus appears that the developmental pattern of work engagement was characterized by a spiral of gain, where work engagement resulted in attainment of additional resources and ultimately more work engagement. In the final model 40% of the variance in work engagement at T2 was explained.

4.6 PAPER IV

When comparing the mean levels of burnout, the results show that there were no significant differences between the two subgroups of teachers at T1, $t(814) = 0.69$, $p = .49$, at T2, $t(814) = 1.02$, $p = .31$, or at T3, $t(814) = 0.63$, $p = .53$. Furthermore, there were no significant differences regarding prevalence of burnout at T1, $\chi^2(3) = 1.45$, $p = .69$, at, T2 $\chi^2(3) = 1.63$, $p = .65$, or at, T3 $\chi^2(3) = 0.32$, $p = .96$. In order to test if the development of burnout differed between the two subgroups, a rANOVA was performed analyzing if there was a significant interaction effect (Time x Age of students). The results showed that this was not the case, $F(2,813) = 0.09$; $p = .91$, indicating that the effect of time was the same for the two subgroups of teachers. The levels and prevalence of burnout are presented in Table 22.

Table 22

Mean levels and prevalence of burnout

	N	*M* (*SD*)	Non-burnout	Moderately low	Moderately high	Burnout
T1						
Complete sample	816	1.55 (0.50)	54.4%	23.8%	16.3%	5.5%
Younger students	601	1.55 (0.49)	54.4%	24.6%	15.6%	5.3%
Older students	215	1.57 (0.52)	54.4%	21.4%	18.1%	6.0%
T2						
Complete sample	816	1.61 (0.48)	48.3%	27.6%	18.1%	6.0%
Younger student	601	1.60 (0.49)	49.1%	27.3%	17.3%	6.3%
Older students	215	1.64 (0.47)	46.0%	28.4%	20.5%	5.1%
T3						
Complete sample	816	1.65 (0.50)	44.6%	26.5%	22.9%	6.0%
Younger students	601	1.65 (0.50)	44.8%	26.6%	22.5%	6.2%
Older students	215	1.67 (0.50)	44.2%	26.0%	24.2%	5.6%

When comparing the levels of work engagement, the results show that there were no significant differences between the subgroups of teachers at T1, $t(814) = 0.84$, $p = .40$, at T2, $t(814) = 0.41$, $p = .69$, or at T3, $t(814) = -1.47$, $p = .14$. When comparing the

prevalence of work engagement, the results show that the subgroups of teachers did not differ significantly at T1, $\chi^2(3) = 0.50$, $p = .92$, at T2, $\chi^2(3) = 1.71$, $p = .64$, or at T3, $\chi^2(3) = 5.27$, $p = .15$. As for the development of burnout, there was no significant interaction effect (Time x Age of students), $F(2,813) = 2.83$; $p = .06$, indicating that the effect of time on work engagement was the same regardless of the age of students. Although the results showed that there nearly was a significant interaction effect, η^2 was only .003, so the effect of time would in any case have been very small. The levels and prevalence of work engagement are presented in Table 23.

Table 23

Mean levels and prevalence of work engagement

	N	*M* (*SD*)	Non-engaged	Moderately low	Moderately high	Highly engaged
T1						
Complete sample	816	2.98 (0.46)	4.4%	20.8%	59.9%	14.8%
Younger students	601	2.97 (0.46)	4.5%	21.0%	60.2%	14.3%
Older students	215	3.00 (0.45)	4.2%	20.5%	59.1%	16.3%
T2						
Complete sample	816	2.93 (0.46)	5.6%	20.7%	62.4%	11.3%
Younger students	601	2.92 (0.46)	6.0%	20.0%	62.2%	11.8%
Older students	215	2.94 (0.44)	4.7%	22.8%	62.8%	9.8%
T3						
Complete sample	816	2.90 (0.46)	5.4%	24.3%	59.1%	11.3%
Younger students	601	2.91 (0.45)	4.5%	23.6%	60.9%	11.0%
Older students	215	2.86 (0.50)	7.9%	26.0%	54.0%	12.1%

4.6.1 Study results

On average the levels of burnout increased across time and there was a significant, $F(2,809) = 19.52$; $p < .001$, albeit small, effect of time. The test-retest correlation showed that the one-year stability ranged between .58 (r_{12}) and .62 (r_{23}), and two-year stability was .53 (r_{13}). In sum, these results indicate that the levels of burnout were moderately low and that the stability was high.

The cluster analysis resulted in a seven cluster solution which met the three criteria for a satisfactory cluster solution. When testing the null hypothesis of no relations in the data the results showed that the chosen cluster solution explained more variance compared to what could be expected by chance, $t(20) = 41.49$; $p < .001$. After having relocated individuals from one cluster to another where they were better fit, the EESS of the final solution was .759 and the homogeneity coefficients for the clusters ranged from 0.04 to 0.36. The results of the rANOVAs showed that there was a significant interaction (time x cluster) effect, indicating that the seven clusters reflected different developmental patterns and thus added validity to the cluster solution. Furthermore, changes in burnout were also accompanied by concurrent changes in work engagement, turnover intention, and unmet expectations. There were significant changes across time

for six of the seven clusters. The mean levels of burnout for at each wave of measurement and the homogeneity coefficients for respective cluster are presented in Table 24.

Table 24

Mean levels and homogeneity coefficient for respective cluster

Cluster		T1	T2	T3	
	N (%)	*M (SD)*	*M (SD)*	*M (SD)*	Homogeneity coefficient
All	816	1.55 (0.50)	1.60 (0.48)	1.65 (0.50)	-
1	204 (25)	1.08 (0.13)	1.16 (0.16)	1.14 (0.15)	0.04
2	89 (10.9)	2.23 (0.32)	2.07 (0.25)	2.02 (0.33)	0.16
3	44 (5.4)	2.50 (0.44)	2.68 (0.38)	2.70 (0.48)	0.36
4	108 (13.2)	1.40 (0.23)	1.64 (0.30)	2.20 (0.25)	0.14
5	83 (10.2)	1.61 (0.23)	2.14 (0.32)	1.73 (0.25)	0.15
6	217 (26.6)	1.40 (0.21)	1.46 (0.22)	1.45 (0.20)	0.09
7	71 (8.7)	2.10 (0.28)	1.44 (0.24)	1.70 (0.27)	0.14

The majority of the teachers did not experience any burnout during the three waves However 43% experienced moderately high levels of burnout at some time of the initial period and 5.4% suffered from burnout at all three waves and did not show any signs of recovery. Individuals with good health and educational success had lower initial levels of burnout whereas those with poor health and who experienced strain during their education had higher initial levels of burnout.

In addition to the explanatory variables presented in Paper IV, three more variables were included to study concurrent changes. These variables were not included in Paper IV due to the space restrictions of the journal but have all been found to be of especial importance in Paper II and Paper IV and are of theoretical interest. The variables were the following; mastery of skills, self-rated health, and spillover from work to family, and intention to leave the teacher profession. The results of these analyses are presented in Appendix IV. The results of these analyses further strengthen the findings in Paper IV. Changes in burnout were accompanied by concurrent changes in the explanatory variables. Burnout was negatively related to mastery of skills and SRH, and positively related to spillover from work to family and intentions to leave the profession. Significant interaction effects (cluster x time) were found for all of the variables.

5 DISCUSSION

The overall aim of the thesis was to study teachers' transition from education in to work life focusing on their experiences of burnout and work engagement during this period. Initially the results of each paper will be discussed separately (sections 5.1, 5.2, 5.3, and 5.4). These sections will then be followed by an overall discussion (section 5.5) of the results that is not directly tied to the specific aims of the papers.

5.1 PAPER I

The purpose of the Paper I was to evaluate the psychometric properties of the SWEBO regarding factor structure and reliability. The results clearly showed that the SWEBO was a psychometrically sound alternative for measuring burnout and work engagement. The reliability for the dimensions and the two subscales clearly exceeded the recommended cut off value of .70 (Streiner, 2003). Furthermore, the results of the CFAs support the hypothesized factor structures of the two subscales meeting the criteria for satisfactory model fit suggested by Hu and Bentler (1999), and also showed that the two subscales measures two separate but highly correlated constructs. The factor loading all exceeded .70, meaning that they explained more than half of the variance in each item. The results of the multi-group CFAs also show that the subscales are invariant across occupation, and that the burnout scale is invariant across age whereas the results were more ambiguous for the work engagement scale.

5.1.1 The SWEBO compared with other instruments measuring burnout and work engagement

It of interest to compare the SWEBO with other instruments used to measure burnout and work engagement. The SWEBO uses a frequency response format. This is also the case for most instruments used to measure burnout and work engagement. One advantage of using a frequency response format is that it allows better comparisons with other related syndromes, such as depression, assessed in a similar fashion.

One central aspect of the SWEBO is the use of a time reference (two weeks) in order to ensure that a state is being measured. Of the burnout and work engagement instruments found when reviewing the literature the Shirom-Melamed Burnout Measure (SMBM) (Shirom & Melamed, 2006) and the SMVM (Shirom, 2003a) were the only instruments that also used a time reference. The time reference of the SMBM and the SMVM is the last 30 work-days (i.e., a period of six weeks). One advantage of using the time reference of two weeks is that this time period is commonly used when assessing depression, thus making comparisons between burnout and depression easier; an issue which previously has been addressed (Shirom, 2005). The time references are however easy to adapt in order to fit any particular research purpose.

A second important aspect of the SWEBO is that it assesses the state mood of the respondents. This is generally not the case for other burnout and work engagement instruments, for two reasons. The first reason is again the aspect of time, which is necessary to measure a state. The second reason is that other instruments, such as the MBI, the OLBI and the UWES, focus on behavioral aspects in addition to affective

aspects. Including behavioral aspects introduces complications, since these aspects might confound the assessment of a construct with behavior (such as coping) related to it; an issue that has been raised by Shirom and Melamed (2006). The SMBM also assesses the state mood (labeled affect) of burnout, it includes a time reference, and it excludes behavioral aspects. One problem with the SMBM, however, is the operationalization of the emotional exhaustion dimension. The items associated with this dimension focus on the perceived ability to engage with other individuals emotionally and these items may thus assess emotional efficacy rather than the state mood of emotional exhaustion. This is not the case for the items of the SWEBO, since it includes only mood adjectives and thus focuses solely on affective aspects.

A third aspect concerns the conceptualization of burnout and work engagement. The burnout dimensions of the SWEBO are conceptually closely related to those of most burnout instruments. Nearly all burnout instruments assess exhaustion and disengagement, or dimensions that are similar in character (e.g., the MBI (Maslach, et al., 1996), the OLBI (Demerouti, et al., 2001), and the SMBM (Shirom, 2003b)). The inattentiveness dimension, on the other hand, distinguishes the SWEBO from other instruments. This dimension differs from the reduced personal accomplishment of the MBI, although it is similar to the cognitive weariness dimension of the SMBM. The main difference between inattentiveness and cognitive weariness is that inattentiveness focuses on feelings of difficulty concentrating, while cognitive weariness incorporates also feelings of impairment of the thinking process. The SWEBO is based on the view that work engagement is the positive contrast to burnout, but work engagement is not seen as the direct opposite of burnout, as is the position taken by Maslach and Leiter (1997). Rather, in accordance with the view of Schaufeli and Bakker (2003), the SWEBO is based on the view that work engagement is a construct that is distinct from burnout. The vigor and the dedication dimensions of the work engagement section of the SWEBO are conceptually similar to those of the UWES. Absorption was initially included in the SWEBO but was removed based on the fact that it was psychometrically unsound and appeared to be unrelated to vigor and dedication in the form in which it was operationalized. The aspect of absorption that, despite this, appeared to be related to vigor and dedication was concentration, and based on this finding a cognitive-oriented dimension more similar to the cognitive liveliness dimension of the SMVM (Shirom, 2003a) has been developed and is included in a revised version of the SWEBO. The psychometric properties of the revised version have been evaluated thoroughly using CFA with satisfactorily results supporting the factor structure of the revised subscale of work engagement (Hultell & Gustavsson, 2010a). This version was however not used in any of the papers in the thesis due to the fact that this would have limited the possibilities for longitudinal analyses in the subsequent studies.

A related construct to burnout that is of interest is exhaustion disorder (Åsberg, et al., 2003), especially considering that the results in the thesis is based on Swedish data. Exhaustion disorder is a mental diagnosis eligible for sick leave in Sweden and is defined as a psychological state characterized by a significant lack of psychological energy or endurance disorder (Åsberg, et al., 2003). Exhaustion disorder is a stress-related disorder, however, compared to burnout it is not limited to work-related stress, but stress in general (a view also held by Pines (Pines, 2005)). Symptoms include

physiological, psychological, and cognitive dysfunctions. Exhaustion disorder is viewed as a final stage of the spiral of exhaustion. The idea of the spiral of exhaustion is that due to overload, caused by reoccurring stressors, the individual is forced to use available resources in order to cope with the stress and hence has fewer resources for recovery. As the process progress more resources are used until finally the supplies have been drained. The spiral of exhaustion corresponds closely to COR theory and the spiral of loss (Hobfoll, 1989; Hobfoll & Shirom, 2000). Although exhaustion disorder is viewed as distinct from burnout it shares many symptoms with burnout. When comparing the conceptualization of exhaustion disorder with conceptualizations of burnout it is apparent that it is especially close to the definition suggested by Shirom and Melamed (Shirom, 2003b; Shirom & Melamed, 2006). It is also more similar with the SWEBO compared to the MBI and the OLBI, considering that the SWEBO also includes a cognitive dimension.

5.1.2 Conclusions

The SWEBO shares features of other instruments used to measure burnout and work engagement, but there are some crucial differences. The similarities concern the theoretical aspects of burnout and work engagement, whereas the differences concern the operationalization of the constructs. The SWEBO fills a gap in the toolbox available for measuring these constructs, with its aspect of time and its focus on only affective aspects of burnout and work engagement. Thus, the SWEBO provides a tool that is psychometrically sound and that assesses in a solid way the state mood of burnout and work engagement.

5.2 PAPER II

The purpose of Paper II was to study how individual characteristics, the educational context, and the work context were related to levels of burnout and work engagement during the initial period of employment.

It has been found that achievement strategies and self esteem during education affect future burnout and work engagement (Salmela-Aro & Nurmi, 2007; Salmela-Aro, et al., 2009), indicating that burnout and work engagement are not solely related to the work climate but also to experiences during higher education. It was therefore assumed that feelings of being prepared for employment and achievement of educational goals would be negatively related to burnout and positively related to work engagement. The results showed that this was not the case for burnout. Neither teacher self efficacy nor achievement of general educational goals were significantly related to burnout. Achievement of educational goals however was positively related to work engagement, indicating that people who feel more prepared when entering employment are likely to be more engaged in their work. It thus appears as if educational outcomes are associated with future work engagement but not with burnout. When comparing these results with the findings of Salmela-Aro and Nurmi (2007) and Salmela-Aro et al. (2009) it should be noted that no concurrent predictors (e.g., job demands or job resources) of burnout or work engagement were included in these studies. When looking at the results of Model 2 (the adding of educational predictors) of the hierarchical regression analyses for burnout and work engagement it was apparent that

the educational predictors affected both future burnout and work engagement but when adding more concurrent predictors the unique variance explained by the educational predictors was completely or partially accounted for by other variables in the model. In sum, experiences during higher education can serve as useful indicators of future burnout and work engagement but when taking into account levels of concurrent demands and resources this will reduce their explanatory value.

Since both burnout and work engagement are mainly two work-related constructs, it was believed that work-related predictors (i.e., job demands and job resources) would account for the largest amount of explained variance in both burnout and work engagement. Job demands and job resources accounted for about one third of the explained variance in burnout. Although this is quite a substantial amount, the increment in R^2 for the life situation predictors was greater than for job demands and job resources combined. However, the beta weights in the final model clearly show that job demands and job resources had the largest relative influence on burnout. Concerning work engagement, the job demands and job resources accounted for just over half of the explained variance. The beta weights also showed that the predictors with the greatest relative influence were job demands and job resources. It should however be noted that the life situation predictors were also of significance when predicting work engagement. The results indicate that beginning teachers who experience an imbalance between private life and work are more likely to develop burnout and less likely to be engaged in their work. These findings are in line with previous research where it has been found that negative influence of work on family has more negative effects on well-being (U. Kinnunen, et al., 2006). The results support the notion that burnout and work engagement are not solely related to the context of employment, and are in line with previous research on the interaction between private life and work (Demerouti, Geurts, & Kompier, 2004; Grzywacz & Marks, 2000).

Given previous findings on the importance of the reality shock and the crisis of competence for new comers it was assumed that unmet expectations and mastery of skills would be the predictors that had the greatest relative influence on both burnout and work engagement. This was the case for both burnout and work engagement. In line with the motivational process of the JD-R model, the results indicate that beginning teachers whose expectations of work are met, and who feel satisfied with their ability to perform well at work, are more likely to be engaged in their work and less likely to develop burnout. Conversely, and in line with the health impairment process of the JD-R model, it appears as if beginning teachers who experience a reality shock when entering employment, and are dissatisfied with their ability to perform well at work, are more likely to develop burnout and less likely to be engaged in their work. When comparing the relative influence of the two predictors it was apparent that the influence of mastery of skills was greater, and it thus appears as if the crisis of competence described by Cherniss (1980) was the most crucial factor for the beginning teachers entering employment. Although the relative influence of unmet expectations was smaller compared to mastery of skills it was still apparent that it was of significance for work-related well-being, and especially for work engagement. The findings of Kramer (1974) have been replicated and somewhat extended in more recent studies of the transition from higher education to employment (Duchscher, 2009; Friedman, 2000; Kelchtermans & Ballet, 2002). The shock phenomenon (e.g., transition shock, reality

shock, praxis shock) has repeatedly been found among newcomers (Duchscher, 2009; Friedman, 2000; Kelchtermans & Ballet, 2002), and supporting the findings of both Kramer (1974) and Cherniss (1980) and is upheld in the present study.

Another interesting finding was the way in which the two different coping strategies were related to burnout and work engagement. Adopting a passive coping strategy was positively related to burnout but non-significantly related to work engagement, whereas adopting an active coping strategy was non-significantly related to burnout but positively related to work engagement. These findings are in line with previous research, and coping strategy has been suggested as a critical factor with respect to the development of either positive or negative health-related outcomes (Cherniss, 1980; Folkman & Moskowitz, 2000; Kyriacou, 2001; Schaufeli & Enzmann, 1998). Schaufeli and Enzmann (1998) have suggested that adopting a dysfunctional coping strategy will increase the probability of developing burnout and result in a depletion of available coping resources (spiral of loss), whereas adopting a functional coping strategy is likely to result in the development of positive job-related attitudes such as job motivation and work engagement and increase available coping resources (spiral of gain). Moreover, these results indicate that coping strategy, combined with job demands and job resources, could be a decisive factor for the health impairment process and the motivational process of the JD-R model.

Induction programs for teachers have proven successful in reducing negative effects such as negative turnover and stress, and increasing positive effects such as job satisfaction (Brandt & Rymenans, 2000; Kelley, 2004; Mitchell, et al., 1998; Smith & Ingersoll, 2004). Accordingly it was assumed that newcomers who received a formal induction or had a mentor would experience less burnout and more work engagement. However, contrary to what was expected, the respondents in the present study who received a formal induction or were assigned a mentor did not experience lower levels of burnout, indicating that these factors have no direct effect on burnout. Levels of work engagement, on the other hand, were positively affected for those who had received a formal induction. Although the effect size was quite small, it is still important to take into consideration that, despite the additional job demands and job resources included in the model, receiving a formal induction independently predicted work engagement.

5.2.1 Explained variance

The present study included 32 predictors. These were mainly chosen based on the results of previous research and for control purposes. Although this is quite a substantial number of predictors, there is still variance for both burnout and work engagement that remains unexplained. The final model of burnout explained 52% of the variance and the final model of work engagement explained 44% of the variance. For work engagement more than half of the variance remains unexplained despite the range and number of predictors in the study. It is possible that there are more job demands and job resources not included in the present study that need to be considered. For instance, Leiter and Maslach (Leiter & Maslach, 1999) have suggested that factors such as community, fairness, and values are important predictors of burnout. Including these aspects might help explain additional variance. Furthermore, although burnout

and work engagement are two work-related concepts, the results of the present study indicate that it may be necessary to include variables related to factors outside employment. Curbow, McDonnel, Spratt, Griffin and Agnew (2003) developed the work-family interface (WFI) scale which measures general overload, work-family conflict, spillover from work to family, family-work conflict, and spillover from family to work. In the present study, however, only spillover from work to family and spillover from family to work were included, and inclusion of the remaining dimensions of the WFI might help to explain more of the variance in both burnout and work engagement.

5.2.2 Conclusions

The results of the present study showed that burnout and work engagement mainly were two work-related concepts. The JD-R model was empirically supported, and the results indicate that job demands are positively related to burnout and negatively related to work engagement, whereas job resources are negatively related to burnout and positively related to work engagement. Furthermore, the results showed that job demands were more strongly related to burnout, whereas job resources were more strongly related to work engagement.

In addition to previous studies found when reviewing the literature on the transition from higher education to employment for beginning teachers, the present study included variables related to higher education when predicting burnout and work engagement during the first year of employment. Although it was found that these variables could serve as indicators of future work-related well-being, the results showed that concurrent demands and resources have better explanatory value.

The findings also confirm those of Kramer (1974) concerning the experience of a reality shock, as well as those of Cherniss (1980) regarding the crisis of competence, as the central factors for the development of work-related well-being in newcomers entering employment. In addition, it was also found that experiences outside the work context affected burnout and work engagement, and that the relation between private life and burnout as well as work engagement should be further explored, especially concerning negative spillover from work to family.

5.3 PAPER III

The purpose of the Paper III was to study the longitudinal relationships of unmet expectations, feelings of competence, and spillover from work to family with 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, & Toppinen-Tanner, 2008; Mauno, et al., 2007; Prieto, et al., 2008; Schaufeli & Enzmann, 1998). It is probable that the reason for this is that the impact of the predictors on changes in burnout or work engagement is mainly mediated by previous burnout or work engagement. In the present study there was only one significant cross-lagged direct

effect on burnout, whereas there were no significant cross-lagged direct effects on work engagement. However, compared to previous studies found when reviewing the literature, indirect effects of the predictors via the outcome variable were included in the present study and thus allowed for the testing of mediation. The results showed that all predictors had significant indirect effects on burnout at T2 via burnout at T1, and on work engagement at T2 via work engagement at T1. These findings indicate that first-year experiences indeed were of significance in relation to the development of work-related well-being but that their effects were mediated via previous burnout and work engagement. Furthermore, it was also evident that both burnout and work engagement affected changes in the predictors. Taken together, the findings indicate that there are spiral-like developmental patterns of both burnout and work engagement, and are in line with previous research on the relations between job demands and burnout and between job resources and work engagement (Demerouti, Bakker, et al., 2004; Xanthopoulou, et al., 2009). It thus appears that 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 leading towards burnout or work engagement.

According to the idea of the JD-R model an overload of job demands will ultimately result in health impairment (e.g., burnout), whereas an overload of job resources will lead to increased motivation (e.g., work engagement) (Bakker & Demerouti, 2007). 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 to employment (e.g., Cherniss, 1980; Friedman, 2000; Hultell & Gustavsson, in-press), 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 addition to being in line with the JD-R model, the findings also correspond to the idea of the COR theory (Hobfoll, 1989; Hobfoll & Shirom, 2000), suggesting 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. If the available resources at work are not enough to cope with the stressors then other available resources are likely to be used until the resources are eventually depleted. 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. This further depletes their resources, and when the resources no longer suffice it is likely that burnout starts to develop. 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. Individuals who have a sufficient amount of job resources available to them will not have to tap into their supply of private resources. This allows them not only to have a richer private life but also gives them time for recovery, which will make it easier for

them to cope better with the demands of work. Thus, besides not being forced to use their private resources it is possible that they will also capitalize better on their job resources and become more engaged in their work. Moreover, reciprocal effects have also been found for spillover between private life and employment (Demerouti, Bakker, 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

5.3.1 Explained variance

The reciprocal model explained 50% of the variance of burnout at T1 and 52% of the variance at T2. When comparing these results with other studies in which demands and resources have been used to predict burnout (e.g., Hakanen, Bakker, & Schaufeli, 2006; Innstrand, et al., 2008; Prieto, et al., 2008; Shirom & Melamed, 2006), the model accounted for about the same amount of explained variance as in these previous studies. These, however, included more predictors compared to the present study, and it thus seems as if the predictors in the model are, indeed, central in relation to burnout. One explanation for this is that unmet expectations and mastery of skills could serve as summary assessments of the psychosocial work climate. Poor working conditions (e.g., high work load, role ambiguity, poor social support etc.) are likely to result in unmet expectations since it is probable that most have hopes of an enjoyable work climate, and it could also be expected that such obstacles will affect one's performance negatively. Hence, the findings do not necessarily imply that other work-related factors are not of interest but rather that these unmet expectations, mastery of skills, and spillover can be efficiently used when predicting work-related well-being, especially when predicting burnout. Moreover, the predictors in the present study had been identified as central for newcomers in relation to burnout, and perhaps the results would have been different if the sample had consisted of more experienced teachers.

The reversed causality model explained 43% of the variance in work engagement at T1 and 40% of the variance at T2. In previous studies with the aim of predicting work engagement, the explained variance has varied between approximately 20-50% (e.g., Llorens, Schaufeli, Bakker, & Salanova, 2007; Mauno, et al., 2007; Prieto, et al., 2008; Schaufeli & Bakker, 2004; Xanthopoulou, et al., 2009), and the amount of explained variance in the present study thus appears to be quite normal. However, more than half of the variance was not accounted for by the variables in the model, indicating that there are predictors not included in the model that would help explain the development of work engagement. In the present study only one resource variable was included, and 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 would perhaps increase the amount of explained variance in work engagement.

5.3.2 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. 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. Previous research has also 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; Schaufeli, Bakker, et al., 2009; Schaufeli & Enzmann, 1998; Seppälä, et al., 2009). High stability scores (i.e., correlations over time), 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. The results of the present study, however, show that burnout and work engagement are stable both regarding rank order and levels.

The means at both T1 and T2 indicate that the beginning teachers rated that on average they experienced symptoms of burnout some of the time and that they were engaged in their work most of the time. This is of course 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 should therefore be interpreted with some caution.

5.3.3 Conclusions

The findings of the present study indicate that the development of both burnout and work engagement are spiral-like in character, a positive spiral resulting in work engagement and a negative spiral resulting in burnout. Furthermore, it was found that first-year experiences of unmet expectations, mastery of skills, and spillover indirectly affected the development of burnout and work engagement, and that their impact was mediated via previous concurrent levels of burnout and work engagement as well as via their respective future level. Finally, the importance of unmet expectations and mastery of skills on the development of work-related attitudes for newcomers was confirmed.

5.4 PAPER IV

The purpose of this study was to examine whether there were separate developmental patterns of burnout underlying the stable levels of burnout for the entire sample. A person-based approach was used to identify developmental patterns of burnout during the initial period of employment. Furthermore, it was also of interest to study how concurrent development for variables related to burnout differed between the clusters, and whether demographics, health-related variables, educational variables and invariant organizational variables could help explain cluster membership.

When adopting a variable-based approach the results of the test-retest correlations and the rANOVA indicated that burnout was a stable construct. Although the results of the rANOVA showed that there was a significant increase in burnout over time, the changes were small in magnitude and the largest difference in levels of burnout was 0.20 (Cohen's *d*) which is considered to be a small effect size (Cohen, 1988). These findings are in line with previous longitudinal studies on burnout (e.g., Schaufeli & Enzmann, 1998; Taris, et al., 2005), all indicating that the stability of burnout, despite being defined as at state construct, is more in line with the stability of a trait construct. When a person-based approach was adopted, however, the data told a different story. The results of the rANOVAs showed that there was a significant interaction effect for cluster in relation to time, indicating that the clusters represented different trajectories. The η^2 values of the seven clusters clearly indicated that there were changes in burnout over time, which evened out when the variable-based approach was adopted. Furthermore, the burnout trajectories for the respective cluster were accompanied by similar concurrent trajectories in work engagement, unmet expectations, and turnover intention: three variables that have all previously been found to be related to burnout (e.g., Halbesleben, 2010; Lee & Ashforth, 1996; Schaufeli & Bakker, 2004). Unmet expectations and turnover intention were positively related to burnout, whereas work engagement was inversely related to burnout. These findings support the clusters representing separate trajectories and hence further validate the trajectories found.

When examining the results of the χ^2 analyses, two things were apparent. The first was that indicators of mental as well as physical health, and educational success, were related to future levels of burnout after having entered employment. Individuals with good health and educational success had lower initial levels of burnout whereas those who had poor health and who experienced strain during their education had higher initial levels of burnout. The second was that although the predictors assessed during the final year of education could serve as indicators of future burnout, they did not in any clear manner predict changes in the burnout trajectories. Instead they appeared to be related only to initial levels of burnout. It could, however, be argued that these indicators could predict the trajectories of clusters 1 (Stable low) and 3 (Stable high). Individuals within cluster 1 consistently showed signs of good mental health, good physical health, and educational success prior to entering employment, whereas the opposite pattern was the case for cluster 3. The two clusters thus appear to represent two groups of individuals: one non-vulnerable and one vulnerable.

Rudman and Gustavsson (2010) performed a similar study focusing on novice nurses' experiences of burnout during the initial period of employment using a person-based approach. When comparing the prevalence of burnout between the teachers and the nurses it is apparent that there were more teachers (52%) who did not experience any burnout during the first three years compared to nurses (15%). About 20% of the nurses experienced burnout at some time compared to 5% of the teachers; however, none of the nurses experienced burnout in more than one wave, whereas the teachers experienced burnout in all waves of measurement and did not show any signs of recovery. Rudman and Gustavsson (2010) identified eight trajectories which share many features with the seven trajectories found in the present study, and it appears that many aspects of burnout develop similarly for nurses and teachers. Concerning the individual characteristics of the respective clusters it is especially apparent that nurses

and teachers with high and low levels of burnout had many similarities. For both nurses and teachers, high levels of burnout were associated with low age, poor health, and educational strains, whereas the opposite pattern was found for those with low levels of burnout.

Although it was found that the clusters represented different trajectories, indicating that burnout is perhaps not such a stable construct as has previously been believed, some of the clusters actually did not change much in burnout levels over time. Of the trajectories found, clusters 1, 2, 3, and 6 could be categorized as being quite stable, whereas the trajectories of clusters 4, 5 and 7 could be categorized as changing. Although burnout is viewed as a syndrome, it could be of interest to see whether the burnout dimensions changed consistently over time or whether there was some dimension that could be identified as a driver. In order to examine this, rANOVAs were performed pot-hoc for clusters 4, 5, and 7, studying the changes over time for each burnout dimension. The results show that all burnout dimensions changed concurrently over time for all clusters. There were, however, differences between the clusters regarding which dimensions changed most. The results showed that the disengagement dimension was the one that changed most over time for cluster 4, whereas the exhaustion dimension was the one which changed the most for cluster 7. When the results are scrutinized in further detail, it is apparent that exhaustion and inattentiveness levels are generally similar in magnitude and always higher than the disengagement levels. Moreover, it seems that as long as burnout levels remain above 1.50 then changes in burnout are mostly associated with changes in the disengagement dimension (both increases and decreases). These findings could be an indication that people initially become exhausted and inattentive, only to then become disengaged, and would thus add support to previously suggested models of the process of burning out (e.g., Gustavsson, et al., 2010; Lee & Ashforth, 1993; Leiter & Maslach, 1988).

5.4.1 Conclusions

The present study both strengthens and expands previous findings. The results of the study confirm the previously found relations between identified predictors of burnout. Furthermore, the person-based approach has previously scarcely been used to study burnout and thus offers a new non-linear perspective on the development of burnout. Although the trajectories of the clusters found do not necessarily represent typical burnout trajectories, the results highlight that there is a significant amount of individual variation which is lost when simply relying on a variable-based approach. The variable-based approach is in this sense limited in scope and the person-based approach presents a fruitful alternative to better understand individual differences regarding the development of burnout.

5.5 OVERALL DISCUSSION

5.5.1 The measurement of burnout and work engagement

After the psychometric evaluation of the SWEBO three more studies have been performed in which the SWEBO has been used to assess burnout and work

engagement. For two of these papers the purpose has been to predict burnout and work engagement, and in the third paper the purpose was to explore the developmental patterns of burnout. In Papers II-IV, burnout has been found to be positively related to job demands and negatively related to job resources, whereas work engagement has been found to be negatively related to job demands and positively related to job resources. Furthermore, as shown in Table 11, the burnout subscale of the SWEBO was highly correlated with the more established burnout measure the OLBI, indicating that the two scales appear to measure a similar construct. These findings further strengthen the validity of the scale, indicating that is a valid measure of burnout and work engagement.

One issue that has been highlighted is the stable nature of both burnout and work engagement. Both constructs have been found to have high stability coefficients and the mean levels also remain stable over time. One possible explanation for this could be problem associated with the measurement of the two constructs. As discussed in sections 1.4.1 and 1.4.2, the operationalizations of burnout and work engagement are often more in line with the operationalizations of psychological traits despite being defined as psychological states. The risk associated with this is, of course, that individuals are too general when they rate their feelings of burnout and work engagement, which might explain the stable nature of the constructs. By adding a clear instruction in the SWEBO that the respondents were only to take their feelings during the last two weeks into consideration when responding it was anticipated that this would make the scale more sensitive to variation. When reviewing the results of the papers in the thesis it is, however, evident that this was not the case. The effect sizes of the changes in both burnout and work engagement were .07 (Cohen's *d*) for burnout and .09 (Cohen's *d*) for work engagement in Paper III, and .20 between the lowest and highest levels for burnout in Paper IV. These were all considered to be small (Cohen, 1988) indicating that the levels remained stable over time. It thus seems as if the addition of a time reference did not have any great effect on the sensitivity to variation.

One issue with the SWEBO that was apparent was that the distribution of the responses was skewed. Although it was expected that the distributions of responses concerning burnout and work engagement would be skewed it was clear that there were floor effects for burnout and ceiling effects for work engagement. These effects might also have contributed to the stability of the constructs. The items in the SWEBO were rated using a four-point frequency response format; this limited number of response alternatives in combination with the sometimes severe affective nature of the items is likely to have contributed to the skewed distribution of responses. In order to increase variation in responses and hopefully to some extent even out the distribution of responses, it therefore seems reasonable that the number of response alternatives on the scale should be increased. Instead of using a four-point frequency response format, a seven-point frequency response format might perhaps be more appropriate.

In sum, the results of the papers support the validity of the SWEBO. The psychometric properties of the scale show that it works well regarding reliability and factor structure. Furthermore, the results also show that burnout and work engagement assessed using the SWEBO relates in an expected way to independent variables commonly included in burnout and work engagement studies, and is highly correlated with an alternative

measure of burnout. However, one of the goals when developing the SWEBO was to resolve the issue of stability, and unfortunately this problem remains. Although increasing the response alternatives on the scale is likely to increase the variation in responses it does not seem probable that this will actually fix the issue of stability. A central question, then, is if the stable nature of burnout and work engagement is actually an issue that needs to be resolved or if this is indeed the nature of the constructs. This is something that needs to be examined further in future studies.

This leads to the final question; what is the added value of the SWEBO compared to other measures of burnout and work engagement? One advantage is that it works well from a psychometric perspective, which is not always the case for alternative measures. The factorial validity of the MBI for instance has consistently been found to be poor (e.g., Bakker, Demerouti, & Schaufeli, 2002; Beckstead, 2002; Boles, Dean, Ricks, Short, & Wang, 2000; Byrne, 1991, 1994; Kalliath, O'Driscoll, Gillespie, & Bluedorn, 2000; Langballe, Falkum, Innstrand, & Aasland, 2006; Schaufeli, Daamen, & Van Mierlo, 1994; Schutte, Toppinen, Kalimo, & Schaufeli, 2000) and yet it is the most frequently used burnout measure. Furthermore, the assessment of burnout and work engagement is in accordance with an appropriate way of measuring psychological states. This is of course of relevance given the fact that both burnout and work engagement are defined as states. However, given the results concerning stability it appears as if this addition was more of cosmetic significance rather than having an actual impact on the variability of the constructs over time.

5.5.2 Experiences prior to entering employment

Although the main focus of the papers in the thesis has been the initial period of employment, Paper II and Paper IV include variables assessed during the final year of teacher education. The variables included were related to educational outcomes as well as mental and physical health. As mentioned in section 1.5.1.1, there are studies indicating that burnout and work engagement are related to experiences in higher education (e.g., Rudman & Gustavsson, 2010; Salmela-Aro & Nurmi, 2007; Salmela-Aro, et al., 2009), and one of the aims of the thesis was to study how experiences during the education program were related to future work-related well-being.

Although the results of Paper II showed that burnout and work engagement clearly were more strongly related to work-related variables compared to the educational variables, there were results indicating that teacher self-efficacy, achievement of educational goals, and turnover intention during education were related to future burnout and work engagement. There is also a possibility that these predictors had an indirect effect on burnout and/or work engagement via the job demands and the job resources, which should be examined in future studies. Furthermore, the results of Paper IV clearly showed that there was an impact of educational outcomes and of mental and physical health during the final year of education. Individuals in cluster 3, who had consistently high levels of burnout, had lower levels of TSE, were less satisfied with their education, felt more pressured by their studies, and felt more pressured by their occupational choice. They also had lower levels of self-rated health, were less satisfied with their life, were more depressed, had higher levels of performance-based self-esteem, and experienced more neck and shoulder pain. When

examining the individuals in cluster 1, who had consistently low levels of burnout, the pattern was the opposite. They had achieved their educational goal, had higher levels of teacher self-efficacy, did not feel pressured by their studies or their occupational choice, and they also had a more sound balance between their studies and private life. Concerning the health-related variables, they had higher levels of self-rated health and were more satisfied with their life, they were also less depressed, had lower levels of performance-based self-esteem and experienced less neck and shoulder pain. These results were, however, based on bivariate relationships and the influence of job demands and job resources (e.g., work load and autonomy) were not controlled for. There is, of course, a possibility that the results would not have been so evident if the influence of such variables had been controlled for, nevertheless for prediction purposes it is clear that these factors matter. In sum, even though burnout and work engagement are best predicted by concurrent work-related variables, it seems unwise to discard the potential influence of educational outcomes and well-being during education on a successful transition to employment and there is more to be done in this area of research.

5.5.3 Induction programs

Previous research suggests that the initial period of employment is especially hard for beginning teachers (e.g., Brandt & Rymenans, 2000; Gavish & Friedman, 2010; Goddard & Goddard, 2006; Goddard, et al., 2006; Ingersoll & Smith, 2003). The strains experienced by many beginning teachers have resulted in the development of induction programs, aiming at making the transition from education to employment easier. Results of previous studies show that these programs have had positive effects (e.g., increased job satisfaction, and reduced turnover) (Mitchell, et al., 1998; Smith & Ingersoll, 2004). Although it is apparent that some teachers experienced severe strain during this period, the overall findings of the papers in the thesis contradict this notion; rather it seems that the majority of the participants remained engaged in their work and experienced low levels of burnout.

The results of Paper II showed that there was no significant effect of receiving a formal induction on burnout, and although there was a significant positive effect on work engagement the effect size was small. These results indicate that receiving a formal induction was not crucial for work-related well-being during the first year of employment. Since burnout and work engagement develop over time, there is a possibility that the effect of induction is not evident until later and that it was too early in their career to detect this. However, the results in Paper IV were based on data from the first three years of employment and there was still no compelling evidence that receiving a formal induction had any great effect on burnout. Only one cluster (cluster 7) in Paper IV differed concerning this aspect (more who received a formal induction). This could be an indication that the induction had an initial buffering effect on burnout, but after the induction period was over the demands of employment caught up and burnout increased. Nonetheless, these results did not in any convincing way support there being an evident positive effect of receiving a formal induction. The cluster with consistently low levels of burnout did not receive a formal induction to a greater extent, and the cluster with consistently high burnout levels did not receive a formal induction to a lesser extent as might have been expected. It could of course be the case that these

individuals were especially vulnerable (cluster 3) or non-vulnerable (cluster 1) to developing burnout, and that this was the reason why no effect of induction was found. However, the individuals in cluster 4 had initially low burnout levels and then increased over all three years and eventually ended up with high levels. If there was indeed a positive effect of induction this was the cluster in which it should reasonably have been noticed, but this was not the case.

In sum, although there were some significant effects of induction on work-related well-being, the findings in the papers do not convincingly show that it is a positive one. Rather the findings indicate that receiving a formal induction is not crucial for the development of burnout and work engagement and that there are other issues that are more important to address for organizations. It should be mentioned that it was only measured whether they received any induction or not, and that no qualitative aspects of the induction were included. Including qualitative aspects might have yielded different results and this issue should be should addressed in future studies.

5.5.4 Organizational demographics

Two different aspects were examined regarding the organizational demographics. The first was the age of the students, and the second was the type of employer.

In Paper II it was found that none of the organizational demographics (i.e., type of employer and age of students) had any significant impact on burnout. It was, however, found that teachers who worked with older students were more engaged in their work. The effect size was nevertheless small and when controlling for job demands and job resources there was no longer any significant effect, indicating that the age of students was not of great importance. When comparing the levels and prevalence of the complete sample at T1, T2, and T3 no significant differences between teachers working with younger students and teachers working with older students were found for burnout or work engagement. It thus seems that the age of the students was not a key factor for either burnout or work engagement.

It was also examined whether the type of employer (i.e., public and private) had any effect on burnout or work engagement. Although it has been argued that private schools in Sweden place too high demands on their employees and that this ultimately has resulted in a severe increase in burnout for these teachers (Nordenskiöld, 2009), the results of the papers did not provide any strong support for this notion. It was found that there were no significant differences in mean levels for neither burnout nor work engagement at T1, T2 or T3. However, at T3 more teachers employed by private schools had a higher prevalence of burnout. This could be an indication that the type of employer does matter when it comes to the development of burnout. The result must, however, be interpreted with caution since the cutoffs used were arbitrary and need to be further validated.

5.5.5 Teacher turnover

A problem often discussed is the rate of negative turnover (voluntarily leaving the profession) among beginning teachers (e.g., Ingersoll, 2001; Ingersoll & Smith, 2003). The total number of persons in the PATH study who reported that they had chosen not

to work as a teacher at T-2 was five (0.2%) out of 2,853, five (0.2%) out of 2,184 at T-1, four (0.2%) out of 1,752 at T1, 19 (1.1%) out of 1,678 at T2, and 43 (2.7%) out of 1,585 at T3. Among these there were participants who reported at more than one occasion that they had left the teaching profession. When examining the turnover more closely of the participants it was found that a total of 63 reported that they had chosen not to work as a teacher. There were five persons at T-2, additionally two persons at T-1, additionally three persons at T1, additionally 18 persons at T2, and additionally 35 persons at T3. In other words, there were seven persons who reported that they chose not to complete their education and 56 who left the profession after it was assumed that they had graduated. Although these data were collected early in the teachers' professional careers the levels of turnover do not seem to be alarmingly high. However, this does not necessarily mean that turnover is not a problem. It was evident that the number of participants who had chosen to leave the profession increased over time. Moreover, there is empirical support for turnover intention being positively related to burnout and negatively related to work engagement (Flinkman, Laine, Leino-Kilpi, Hasselhorn, & Salanterä, 2008; Hallberg & Schaufeli, 2006; Lee & Ashforth, 1996). These findings were confirmed in Paper II and Paper IV. Furthermore, there is also a risk that the levels of turnover were underestimated since there is a possibility that participants who had left the profession might have found it less relevant to participate in the study and therefore chose to decline participation or did not respond.

In Paper II it was found that individuals who reported during the last year of their education that they did not intend to work as a teacher five years from now were more likely to develop burnout and less likely to be engaged in their work. Previous research has found that turnover intention is related to both burnout and work engagement (Flinkman, et al., 2008; Hallberg & Schaufeli, 2006; Lee & Ashforth, 1996), and in this sense, the results are not unusual. The interesting aspect of these findings is that respondents reported that they intend to leave their profession during the final stage of their education (i.e., prior to actually having entered employment) and that this affected future levels of burnout and work engagement. One possible explanation concerning the negative association with work engagement could be that individuals who did not intend to continue working as a teacher did not see the point in engaging themselves in their work since they only saw it as a short-term relationship. Explaining the positive association with burnout is, however, less straightforward since the reasonable action for someone who does not wish to remain in a profession would be to leave it rather than pushing themselves towards burnout. It might be the case that these individuals do not feel that they have the option of just leaving their work after investing time, effort, and money in an academic professional education and therefore feel that they are trapped and forced to continue working as a teacher. This is referred to as the "locking-in phenomenon" (Aronsson & Göransson, 1999, p. 152), where individuals experience that they lack control over being able to leave their occupation. It has been found that remaining in an unpreferred occupation is positively related to fatigue and depression (Aronsson & Göransson, 1999), two constructs related to burnout.

In Paper IV it was apparent that burnout was related to turnover intention, and individuals with higher levels of burnout also had higher intentions to leave their job. When examining the burnout trajectories it is evident that changes in burnout occurred along with concurrent similar changes in turnover intention and that high levels of

burnout were associated with high levels of intention to leave both one's job and one's profession. Although these findings support previous findings that high levels of burnout can be a risk for having higher intentions to leave one's profession, it should be noted that most of the beginning teachers did not experience burnout and that few had left the teaching profession.

5.5.6 Demographics

A consistent finding in the literature is that burnout is negatively correlated with age; this was also found in Paper I and Paper IV. Although this finding is consistent, it has been highlighted that age can be confounded with work experience (Maslach, et al., 2001). In the present study, however, the participants all had the same amount of work experience, thus indicating that becoming older might have a protective role against burnout. Perhaps the confounding variable is not work experience but rather life experience. Previous research has found that job stress is not only related to the context of work but also to the context of private life (Hultell & Gustavsson, in-press; Thompson & Prottas, 2006), and since older persons have more life experience this could help them cope better with balancing work and private life and ultimately lower their burnout levels. When examining the effect of age on work engagement there was no support for age affecting levels of work engagement; these finding are in line with previous research on work engagement (e.g., Mauno, et al., 2007; Schaufeli & Bakker, 2003; Schaufeli, Bakker, & Salanova, 2006), all indicating that age is of no significant importance in relation to work engagement.

The results of Paper II did not in any way support sex being related to burnout or work engagement. The results of Paper IV showed, however, that there were more females in the cluster with the highest levels of burnout, which might be an indication that females were more vulnerable to burnout. On the other hand, there were more males in cluster 7 who had initial high levels of burnout at T1 that later declined at T2 only to increase at T3. One thing which is necessary to take into consideration is that the sample consisted of teachers, an occupation characterized by a high number of females, and there were about 85% of females in the sample. Had employees from a wider variety of occupations been included this might perhaps have yielded different results. In a recent meta-analysis of gender differences in burnout it was found that females scored higher on exhaustion (Cohens' d = .10) but that men scored higher on depersonalization (Cohen's d = .19); when examining levels of overall burnout it was found that females scored higher (Cohen's d = .18) (Purvanova & Muros, 2010). It thus appears that females have higher levels of burnout, however these differences were considered to be small (Cohen, 1988) and hence appear to be of less practical significance. Concerning work engagement, there are results that show that males have higher levels of engagement (e.g., Mauno, et al., 2007; Schaufeli & Bakker, 2003; Schaufeli, et al., 2006), it was, however, concluded in these studies that the effect sizes were so small that they did not have any practical significance. In conclusion, although there are studies showing that there are sex differences for both burnout and work engagement it appears as if these differences were of no great practical significance and that it is of greater importance to direct attention to other factors such as job demands and job resources.

5.5.7 Crisis of competence and reality shock

Two of the most crucial factors for the development of both burnout and work engagement identified in the thesis were mastery of skills and unmet expectations. These variables were used as proxies for crisis of competence (i.e., mastery of skills) and reality shock (i.e., unmet expectations), two factors that previously have been identified as crucial for the development of burnout (e.g., Cherniss, 1980; Duchscher, 2009; Friedman, 2000; Kramer, 1974). The findings of the papers clearly supported this notion and it is apparent that these issues need to be addressed.

In a report based on data collected during the final year of education it was evaluated how the participants in the PATH study had experienced their education. Although the results showed that many were satisfied with many aspect of the education, the most striking finding was that the student teachers experienced that the teachers on the teacher education program and the teachers working in the schools did not share the same view on the teaching profession, and it seems as if both parties lack insight into and knowledge about each others' daily operations (Wännström, Djordjevic, et al., 2009). These findings are somewhat puzzling considering that this should be the natural link between theory and practice for the student teachers, and if this link is weak it seems likely that this will result in teachers who are not properly prepared for the actual conditions of employment. Furthermore, in a report by Djordjevic et al. (2009) based on qualitative analysis, participants in the PATH study responded to an open-ended question about what would have alleviated the transition from education to employment. The results of the report clearly show that many felt that their education had not prepared them sufficiently for the conditions of employment. The teachers felt that their education did not prepare them well to handle daily administration, grading, test construction, conflict management, dealing with difficult students, contact with parents, and functional instruction techniques. The overall experience was that the teachers felt that there was a discrepancy between what they were being taught during their education and the knowledge actually required when working as a teacher. Moreover, the teachers also reported that they were dissatisfied with the amount of student-teaching practice during their education. The teachers felt that if there had been a greater amount of student-teaching practice during their education this would have helped them to be better prepared for the diversity of future employment and it would also have allowed the theoretical knowledge they had acquired during their education to be tested. Several of the teachers also reported that receiving some form of formal induction or having an assigned mentor during the initial period of employment would have eased the transition. These findings correspond well to the evaluation of the new teacher education program (Utbildningsdepartementet, 2008) where it was concluded that the education did not prepare the student teachers well for employment. Concerning which factors the teachers identified as problematic during their initial period of employment, these correspond well to the findings of Veenman (1984) and Kyriacou (2001), and it appears as if these skills are not acquired to a satisfactory degree during teacher education. It thus seems as if there is a need to improve the quality of the teacher education and especially to match the content of the education to the actual reality of employment. It is also apparent that the cooperation and communication between the teacher education program and the schools where the student teachers do their student-teaching practice need to be improved. A joint view of

the teaching profession and the required knowledge and skills for being a successful teacher will improve the chances of a successful transition and are also likely to result in better teachers.

In conclusion, there needs to be a better match between what is being taught in the teacher education program and what is actually required when working as a teacher. It also seems necessary to increase the amount of student-teaching practice. This would better allow the student teachers to test their wings before learning to fly on their own and it would also give them a more accurate view of the reality of teachers. Giving a realistic preview of jobs has been found to adjust employees' expectations of their future work towards being more realistic and ultimately resulting in lower rates of turnover (Buckley, et al., 2002; Hom, Griffeth, Palich, & Bracker, 2006). It should, however, be mentioned that this does not imply that people should not expect great things from their work, it only means that they should not have unrealistic expectations. Implementing such changes would hopefully lead to a reduction in the negative impact of the crisis of competence and the reality shock, and with a new teacher education program around the corner in Sweden it will be very interesting to see what the future holds for Swedish teachers.

5.5.8 Limitations

One of the main limitations of the study concerns the level of attrition. Of the 2,853 individuals who chose to participate in the study at T-2 only 1,149 (40%) participated in all waves of measurement. An attrition analysis was performed in order to examine if there was any systematic dropout among the respondents over time (for a detailed description see section 3.2). The results showed that there were main effects of time, sex, and SRH. The results showed that the response rate deteriorated across time and that there was a lower response rate for males and for participants with lower levels of SRH. This is of course a limitation of the study, and considering that the main outcomes of the study (i.e., burnout and work engagement) were health-related there is a risk that the levels of burnout were underestimated and that the levels of work engagement were overestimated.

An additional limitation concerns the fact that the results are based on self-reports. Although the use of self-reports is often criticized, alternative methods of measure seldom perform better concerning construct validity (Howard, 1994) and the use of self-reports has been found to work well when diagnosing depression (Sheeran & Zimmerman, 2002; Zimmerman, et al., 2006), a construct related to burnout. However, it would have been interesting to complement the self-reported data with more objective data such as biological markers, registered sick leave (short-term and long-term), and movement within the labor market.

Another limitation that is related to the SWEBO is that the two most commonly used instruments for measuring burnout and work engagement (i.e., the MBI and the UWES) were not included in the study. This limits the possibility of comparison between the scales, regarding levels, stability, and factor structure. This is something that could be seen as a factor weakening the validity of the SWEBO. However, the OLBI was included in the study and the results clearly showed that it was highly

correlated with the burnout subscale of the SWEBO. The OLBI has also been used for measuring work engagement and was found to be rather strongly correlated with the work engagement subscale of the SWEBO which further support the use of the SWEBO.

Concerning the external validity of the findings this study suffers from three major drawbacks that potentially might limit the generalizability of the findings. The first is that the sample was based on Swedish data and it is not certain that the results are generalizable to individuals in other countries. However, the sample included participants from the whole of the country and it is therefore likely that the results are generalizable for teachers in Sweden. Moreover, the results of the papers were in line with previous international research findings and it thus appears as if they were not severely limited in this sense. An additional limitation concerns the fact that the sample only included teachers and the results are not necessarily generalizable to other occupational groups. The results of the papers were, on the other hand, in accordance with studies using samples covering a wide range of occupations, and it seems as if work-related well-being for teachers is not totally different from work-related well-being in other occupations. The final limitation concerns the time the participants started their education. Considering the circumstances under which the new teaching education was implemented there is a risk that the participants' period of education, at least initially, was quite different and turbulent compared to the educational period of the student teachers who started their teaching education in the following years. Furthermore, considering the new reform of teaching education in Sweden there is also a possibility that the student teachers starting their education in the fall of 2011 will have a different experience. It should, however, be that these differences are likely to be more related to educational experiences. Although a receiving better teacher education and being more prepared for employment is likely to have an effect on work-related well-being, the impact is probably more related to levels of work-related well-being than the relations between well-being and employment conditions. In this sense there is a risk that the levels of burnout and work engagement found in the study were limited to the sample in the PATH study, but the nature of the relationships found is likely to be valid for past and future generations of beginning teachers.

5.5.9 Future research

It has been apparent that the teacher education program in Sweden implemented in 2001 has suffered from many drawbacks. This has resulted in a reform of the teacher education program which will be implemented in 2011. Naturally it is of great interest to study the effects of this reform to see if it will result in an overall improvement in teacher education and better prepare the student teachers for their future work as teachers.

Given the negative impact of unmet expectations on work-related well-being it would be of interest to study how it is possible to lower these expectations and make them more realistic. It is apparent that the student-teaching practice needs to be improved, which might be one way. Another option that would be interesting to study is the effect of using realistic job previews (RJP), something that has been found to be successful in other professions.

The results show that balance between work and private life was of importance in relation to both burnout and work engagement. It would therefore be interesting to study the effect of introducing work-life balance programs to see if this could be a promising way of improving work-related and overall well-being.

The results of the papers in the thesis did not find any great effect of receiving a formal induction when entering employment. However, it was only studied whether the teachers received an induction or not, and no qualitative aspects of the inductions were evaluated (e.g., structure, content, and period of time). It would therefore be of interest to study the qualitative aspects of the induction programs and to further explore their impact on burnout and work engagement.

5.6 IN CONCLUSION

The papers included in the present thesis have both confirmed and expanded findings of previous research on burnout and work engagement. The JD-R model was empirically supported. The COR theory was also supported and the findings in Paper III indicate that there were spiral-like developmental patterns of both burnout and work engagement. Moreover, the crucial importance of the crisis of competence and the reality shock was evident, and the results confirmed the previous findings of studies on newcomers' initial period of employment. In addition to just confirming previous finding there were also some new features in the papers in the thesis. In Paper I a new instrument for measuring burnout and work engagement was presented; compared to other previous instruments the two constructs were properly operationalized as states, and the instrument also worked well psychometrically. In Paper II the effect of educational variables on burnout and work engagement were studied. Although there are studies that have investigated the impact of educational variables on future burnout and work engagement, no studies were found that had focused on teachers. Furthermore, the high number of control variables included in Paper II also allow for an exclusion of many of these in future studies. In Paper III it was examined if there were spiral-like developmental patterns of burnout and work engagement. In this study compared to other studies found when reviewing the literature indirect effects were included in the model and it was found that burnout and work engagement both mediated previous experiences of demands and resources. In Paper IV the stable nature of burnout was addressed; the findings showed that when using a variable-based approach burnout was a stable construct, regarding both rank order stability and stability in levels. The new feature of Paper IV was to use a person-based approach when studying the development of burnout. Seven different underlying burnout trajectories were identified and validated, showing that the stable development of burnout might actually be somewhat shaky.

The question in the title of the thesis concerns whether the beginning teachers were lost in transition. The term lost in this situation can mean two different things, both of which are of interest. The first is that lost can refer to teachers being lost in the sense that they chose to leave the teaching profession. The results showed that almost none of those who opted to participate in the study chose not to complete their teaching education and very few reported that they had chosen to leave the teaching profession

after it was assumed that they had entered employment. The second meaning of the term lost is that it can refer to having trouble in finding one's way towards a desired goal. An indication of being lost in this sense would be shown in experienced strain and lack of motivation during the transition period (e.g., high levels of burnout and low levels of work engagement). Although it was apparent that there were teachers who had high levels of burnout and low levels of work engagement, the vast majority actually seemed to manage the transition well. Most teachers did not experience burnout and were engaged in their work. It is, however, necessary to take into consideration that many did not choose to participate in the study, which might result in a slight distortion of the results regarding levels of turnover, burnout and work engagement. Keeping this in mind it nevertheless appears as if the answer to the question whether the teachers were lost or not would be that some were lost during the transition, which is of course problematic, but that most teachers appear to find their way and remain engaged in their work, which is positive for both themselves and hopefully also their students.

6 SAMMANFATTNING (ABSTRACT IN SWEDISH)

De faktorer som hade störst påverkan på utbrändhet och arbetsengagemang under den första tiden i yrkeslivet var upplevelsen av att man hade tillräckligt med kompetens för att tillfredställande kunna utföra sitt arbete, skillnaden mellan förväntningar på arbetslivet och den faktiska verkligheten samt balansen mellan arbetsliv och privatliv. Nyblivna lärare som kände sig kompetenta, vars förväntningar överensstämde med hur det var i arbetslivet och som hade en sund balans mellan arbetsliv och privatliv upplevde i mindre utsträckning utbrändhet och var mer engagerade i sitt arbete. På det stora hela hanterade de flesta lärarna övergången från utbildning till yrkesliv bra och hade låga nivåer av utbrändhet och höga nivåer av arbetsengagemang. Det fanns emellertid lärare som upplevde problem och efter en relativt kort tid valde att lämna läraryrket och det fanns även lärare som blev utbrända.

Bakgrunden till studien var den kraftiga ökningen av långtidssjukskivningar som en följd av psykisk ohälsa som skedde i Sverige i slutet av 1990-talet. Läraryrket var ett av de yrkena med högst nivåer av långtidssjukskrivningar och nationella data har även visat att läraryrket är det yrke där flest upplever höga nivåer av arbetsrelaterad stress. Vidare har forskning visat att övergången från utbildning till arbetsliv upplevs som en utmaning av många och att den första perioden i arbetslivet i många fall är avgörande för utvecklingen av arbetsrelaterade attityder, detta gäller speciellt för utvecklingen av utbrändhet. Det övergripande syftet med studien var att studera lärares övergång från utbildning in i arbetslivet med fokus på deras upplevelser av utbrändhet och arbetsengagemang.

De data som använts i studierna kommer ursprungligen från studien Lärares Tillvaro i Utbildning och Arbete (LÄST). LÄST-studien har en longitudinell studiedesign och data har insamlats årligen under en femårsperiod med hjälp av enkäter. Två datainsamlingar ägde rum under lärarstudenternas två sista år på utbildningen och tre datainsamlingar ägde rum under deras tre första år i arbetslivet. Totalt 4067 lärarstudenter ingick i urvalsramen varav 2853 valde att delta och utgjorde därmed studiens kohort. Data har analyserats med hjälp av kvantitativa analyser.

Resultaten visade att erfarenheter under utbildningen i viss mån påverkade initiala nivåer av utbrändhet och arbetsengagemang. Det var dock tydligt att både utbrändhet och arbetsengagemang i huvudsak påverkades av förhållandena i arbetslivet. Det var mer sannolikt att nyblivna lärare som upplevde höga nivåer av krav och låga nivåer av resurser utvecklade utbrändhet, varav det motsatta förhållandet gällde för arbetsengagemang. Resultaten visade även att upplevelser redan under första året i arbetslivet påverkade utvecklingen av både utbrändhet och arbetsengagemang, något som indikerar att dessa begrepp har spiralliknande utvecklingsmönster, en negativ spiral som resulterar i utbrändhet och en positiv spiral som resulterar i arbetsengagemang.

Sammanfattningsvis visade studien att majoriteten av lärarna hanterade övergången bra och att de fortsatte vara engagerade i sitt arbete. Den kraftiga inverkan av förväntningar på arbetslivet samt upplevd kompetens på utbrändhet och arbetsengagemang

understryker vikten av att förbereda lärarstudenterna väl inför deras kommande arbete. Det finns därmed ett viktigt arbete att göra på lärarutbildningarna i Sverige i att förse framtida lärare med de nödvändiga kunskaper och färdigheter som krävs för att bli framgångsrika lärare samt att ge en realistisk bild av hur deras kommande arbetsliv kommer att se ut.

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