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Principal Self-Efficacy

The Benefits of Efficacy Beliefs for Adaptive Functioning

Thesis for the degree of Philosophiae Doctor

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ABSTRACT

One purpose of the present thesis was to develop and test the factor structure of a multidimensional and hierarchical Norwegian Principal Self-efficacy Scale. The scale was designed to capture principals' self-efficacy in relation to different areas of responsibilities and relations. The development of the instrument was initiated with qualitative interviews with principals from different schools. Eight categories were derived from the interviews and a questionnaire was developed on the basis of these categories. Another purpose of the research was to investigate relations between principals' self-efficacy and other work related psychological concepts and perceived contextual conditions. The research was conducted in two phases, a pilot and a main study. Participants in the pilot study were 300 principals of the population of Norwegian principals. Participants in the main study were 1818 principals from the same population. Data were collected by means of electronic questionnaires and analyzed be means of confirmatory factor analyses and structural equation modeling. The results clearly support the conceptualization of principal self-efficacy as a hierarchical and multidimensional construct. Moreover, the findings supported expectations that were derived from self-efficacy theory and previous research indicating that perceived self-efficacy influences individual' cognitions and emotions, and determines how environmental opportunities and impediments are perceived.

SAMMENDRAG

Et av de overordnede målene med denne studien var å utvikle og teste faktorstrukturen til et multidimensjonalt og hierarkisk instrument for å måle norske skolelederes mestringsforventninger. Utviklingen av instrumentet ble initiert ved å intervjue fem rektorer for å få en beskrivelse av deres hverdag. Åtte kategorier ble utledet fra intervjuene og et spørreskjema ble utviklet på bakgrunn av disse. Et annet overordnet mål med studien var å undersøke hvordan mestringsforventning relaterer seg til andre psykologiske og kontekstuelle forhold. Studien ble gjennomført i to faser, en pilotstudie og en hovedstudie. Respondentene var norske rektorer og antallet var henholdsvis 300 i pilotstudien og 1818 i hovedstudien. Data ble innsamlet ved å bruke elektroniske spørreskjema. Data fra disse ble så analysert ved å benytte konfirmerende faktoranalyser og structural equation modeling. Analysene støtter konseptualiseringen av mestringsforventninger som et multidimensjonalt og hierarkisk konstrukt. Videre støttes hypotesene som ble utledet fra sosial kognitiv teori angående relasjonen mellom mestringsforventning og engasjement, utbrenthet, jobbtrivsel, opplevd autonomi, motivasjon til å slutte og opplevde kontekstuelle forhold.

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INTRODUCTION

Research on leadership efficacy indicates that positive efficacy beliefs are vital to leaders' success because it determines the effort and persistence on a particular task as well as the aspirations and goals they set (Bandura, 1997; Gist & Mitchell, 1992). According to McCormick (2001), self-efficacy is as a key cognitive variable regulating leader functioning in dynamic environments. Previous research on leadership efficacy in different occupations reveals that self-efficacy directly promote effective leader engagement, flexibility, and adaptability across varying challenges which often characterize complex organizational contexts (Hannah & Luthans, 2008). Self-efficacy positively affects leaders functioning because higher levels of self-efficacy provide the internal guidance and drive to create the agency needed to pursue challenging tasks and opportunities successfully (Hannah, Avolio, Luthans, & Harms, 2008; Hannah & Luthans, 2008).

Still, despite the proven importance of positive efficacy beliefs for optimal functioning, the concept of leadership efficacy has received relatively little attention in the leadership literature (Hannah, et al., 2008). This is according to Hannah et al. (2008) surprising given that effective leadership requires both high levels of agency and confidence. Similar conditions are prevailing regarding research on leadership efficacy in educational contexts.

The Present Study

The available studies conducted to investigate principal self-efficacy indicate that scientists lack a well-tested and proven instrument for measuring this concept. There seems to be no common agreement on how the construct should be conceptualized or how it should be measured. A problem may be that the instruments for capturing principals' self-efficacy are reduced to only a few dimensions or do not take into consideration the hierarchal structure

that characterizes leaders' self-efficacy (Hannah, et al., 2008). Thus, they may not capture all important aspects of the principals' work.

One purpose of the present study was therefore to develop and test the factor structure of a multidimensional and hierarchical Norwegian Principal Self-efficacy Scale (NPSES) that could capture principals' self-efficacy in relation to different areas of responsibilities and relations. The development of the NPSES was initiated with five semi-structured qualitative interviews with principals from different public elementary schools and middle schools to assure that relevant dimensions were included. Eight categories were derived from the interviews and a questionnaire was developed on the basis of these categories.

Another purpose of the study was to investigate relations between principals' self-efficacy and other work-related concepts. Previous research indicates that principals' self-efficacy is associated with adaptive functioning. For instance, efficacious principals tend to be more persistent in pursuing goals and are more adaptable to changes (Osterman & Sullivan, 1996). A second purpose of the study was therefore to investigate how principals' self-efficacy relates to work engagement, burnout, job satisfaction, perceived job autonomy, motivation to quit, and perceived contextual constraints to autonomy.

An overall purpose of the present study was to contribute to self-efficacy research. The body of empirical studies regarding principal self-efficacy is limited. This study contributes to empirical research by initiating the development of a reliable and valid instrument for measuring principals' self-efficacy. The study also extends the literature regarding principal self-efficacy and its relation to other concepts. Finally, the results may provide ideas and practical guidelines for practicing principals, educators, and the educational governance.

Research Objectives

Four related papers constitute the basis for the present thesis. The research was conducted in two phases, a pilot and a main study. Paper 1 reports on the results from the pilot study, whereas Paper 2-4 reports on the results from the main study. The purpose of *Paper 1* was to develop and test the factor structure of the multidimensional and hierarchical NPSES. Another purpose of Paper 1 was to investigate the relation between principal self-efficacy and work engagement, both for substantial and validation purposes. The purpose of *Paper 2* was to explore relations between principal self-efficacy, burnout, and job satisfaction and investigate how these constructs relates to the principals' motivation to quit their job. *Paper 3* explores relations between principal self-efficacy, perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy. Finally, the purpose of *Paper 4* was to investigate relations between self-efficacy, perceived job autonomy, and emotional exhaustion among principals as well as school teachers. In the study of principals, the principals' perceived *autonomy provided to teachers* was included.

Outline

The first part of the thesis presents the theoretical framework and the concepts in which the research is founded. Then hypotheses regarding the relation between principal self-efficacy and the other concepts in the study are provided. The methodology and the development of the NPSES are then reviewed before the four papers underlying the thesis are presented. The last part of the thesis consists of an overall summery of the results and a discussion. Finally, both practical implications and limitations of the study are provided.

THEORETICAL FRAMEWORK

The following chapter provides a review of the theoretical framework and the concepts that underlies the present thesis. The theories and the concepts are presented in chronological order based on the papers that constitute the research. This comprises of social cognitive theory, work engagement, burnout, job satisfaction, job autonomy, motivation to quit, and contextual constraints, respectively. Both theoretical perspectives and empirical research are presented. Theoretical hypotheses regarding the relation between principal self-efficacy and the other concepts in the study are provided at the end of this chapter.

Social Cognitive Theory

Self-efficacy is one of the major determinants affecting human functioning and self-regulation, and research has demonstrated strong positive relations between self-efficacy and various criteria of human performance in organizations (e.g. Holden, 1991; Stajkovic & Luthans, 1998). For instance, Stajkovic & Luthans (1998) found a weighted correlation of .38 between self-efficacy and work-related performance. They also found that self-efficacy tends to be a better predictor of work-related performance than traditional workplace attitudes (e.g. job satisfaction and organizational commitment) (Stajkovic & Luthans, 1998). Thus, principals' efficacy beliefs are assumed to be vital to their adaptive functioning because self-efficacy determines the effort and persistence on particular tasks as well as aspirations and goals (Bandura, 1997; Gist & Mitchell, 1992; Luthans & Peterson, 2002). Bandura's *social cognitive theory* provides a proven theoretical and empirical foundation for investigating principals' self-efficacy. The initial subsections are devoted to an overview of the social cognitive framework before the concepts of self-efficacy, leadership self-efficacy, and principal self-efficacy are reviewed.

Background

Bandura was educated at a time when behavioristic views of human functioning dominated the psychology. However, at the very start of his career he found these views problematic. Bandura stated that a psychology without a focus on cognitive processes could not aspire to explain the complexities of human functioning (Pajares, 2002a; Pajares & Schunk, 2002). To predict how peoples' behavior is affected by the environment, it is critical to understand how they cognitively process and interpret their surroundings. Bandura (1986) stated that "a theory that denies that thoughts can regulate actions does not lend itself readily to the explanations of complex human behavior" (p. 15). According to Bandura (1977), individuals create and develop self-perceptions of capability that become instrumental to the goals they pursue and to the control they are able to exercise over their environments (Pajares, 2002a).

The social cognitive theory was first proposed in his publication of "Social foundations of thought and action: A social cognitive theory" (Bandura, 1986), a theory emphasizing an agentic view of personality and the role of self-referent phenomena. Individuals possess beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions. These beliefs comprise a self-system where human behavior is the result of the interplay between this system and external sources of influences (Bandura, 1986; Pajares, 2002a; Pajares & Schunk, 2002).

Social cognitive theory contrasts with theories of human functioning that overemphasize the role of environmental factors. Behaviorist theories often show a scant interest in self-processes because they assume that human functioning is caused by external stimuli. In behaviorist theories internal processes are often viewed as transmitting rather than causing behavior. Self-processes are therefore dismissed as a redundant factor in the cause and effect process (Bandura, 2008; Pajares, 2002a). The theory also contrasts with theories

that overemphasize the influence of biological factors in human functioning. Social cognitive theory acknowledge the influence of evolutionary factors but rejects the type of evolutionism that views social behaviors as the product of evolved biology but fails to account for the influence of social and technological innovations. Instead, social cognitive theory proposes a bidirectional influence where both evolutionary factors and human development have a mutual influence on each other (Bandura, 2008; Bussey & Bandura, 1999; Pajares, 2002a).

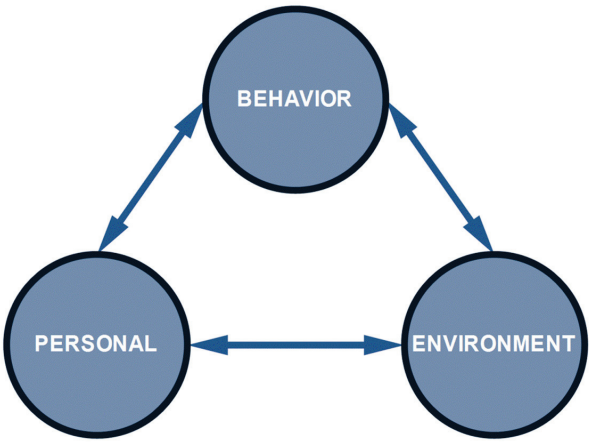
An Agentic Perspective

The social cognitive theory emphasizes the evolvement and exercise of human agency. Human agency is an idea that people can exercise some influence over what they do (Bandura, 1982, 1997, 2006a, 2006c, 2008). To be an agent is to intentionally influence one's functioning. In this perspective people are viewed as self-organizing, proactive, self-reflective, and self-regulated, rather than reactive organism shaped and shepherded either by internal or external events (Bandura, 2008). People are engaged in their own development and possess the skills to control their own thought patterns and emotions. The ways people think, believe, and feel create guidelines for behavior. Social cognitive theory asserts that people's perception of reality, and thus behavior, is affected by their control and influence over their lives (Bandura, 2008).

Human agency operates within a broad network of socio-structural influences (Bandura, 2001, 2006a, 2006c). Social systems are created through people's activities. These systems impose constraints and provide resources for personal development and functioning. Individuals are therefore considered both products and producers of the environment and their social surroundings (Bandura, 2008). Human functioning is viewed as a product of a dynamic interplay of intrapersonal, behavioral, and environmental influences. This is the foundation of Bandura's (1986) *reciprocal determinism* (Figure 1) which suggests that intrapersonal factors,

behavior, and environmental influences create interactions that result in a triadic reciprocality (Bandura, 1986, 2008).

Figure 1: Reciprocal determinism: Triadic reciprocality



This triadic conceptualization includes the exercise of self-influence as part of the causal structure. According to Bandura (2008), individuals make causal contributions to the course of events when they are acting agentic. The magnitude of these personal contributions to the codetermination may vary depending on the level of agentic personal resources, types of activities, and situational circumstances (Bandura, 2008).

Modes of Human Agency

Social cognitive theory proposes three modes of human agency: *individual, proxy, and collective agency* (Bandura, 2006a, 2008). These modes of agencies may operate simultaneously but vary in strength. Individual agency is the individuals' cognitive processes which affect personal functioning and allows performance of intentional acts (Bandura, 2006a, 2008). However, in many situations people do not have direct control over the conditions that affect their life. Such circumstances make people seek valued outcomes through the exercise of proxy agency. According to Bandura (2008), this is a socially

mediated mode of agency. In many situations people tend to get those who have access to the resources or who wield influence to act at their behalf to secure desired outcomes. Finally, collective agency is peoples shared beliefs in their common capabilities to bring desired outcomes. Many things people seek are only achievable through socially interdependent cooperation and effort. People pool their knowledge, skills, and resources to provide mutual support and work together to secure what cannot be accomplished on their own (Bandura, 1997, 2002, 2006a, 2006c, 2008).

Core Properties

Social cognitive theory adopts an agentic perspective toward human functioning and according to Bandura (1997, 2008) there are four core properties of human agency. These properties include intentionality, forethought, self-reactiveness, and self-reflectiveness (Bandura, 2006c, 2008). People form *intentions* that include action plans and strategies for realizing them. However, most human activities involve interaction with other agents. Therefore, individuals have to negotiate and accommodate their self-interest to achieve unity of effort within diversity (Bandura, 2008).

People have the ability to plan their courses of action. Through symbolic representations and *forethought* people can imagine potential consequences and anticipate likely outcomes. This capability enables people to set themselves future goals and challenges. These goals and challenges may in turn motivate, regulate, and guide future activities. This capability to plan alternative strategies enables people to anticipate consequences of an action without actually engaging in it (Bandura, 2006c, 2008; Pajares, 2002a). The ability to bring anticipated outcomes to bear on current activities promotes purposeful behavior. According to Bandura (2008), a forethoughtful perspective provides direction, coherence, and meaning to life.

The third agentic property is *self-reactiveness.* According to social cognitive theory, agents are not only planners and forethinkers; they are also self-regulators (Bandura, 2008). People have self-regulatory mechanisms that enable the potential for self-directed changes in behavior (Bandura, 1997, 2006c; Pajares, 2002a). The capability to self-regulate own actions and behavior involves goal settings, self-observations, self-monitoring, judgments about own actions, choices, attributions, and evaluative reactions. This also includes evaluations of one's own self (e.g. self-concept and self-esteem) and self-motivators that act as personal incentives to behave in self-directed ways (Bandura, 2008; Pajares, 2002a).

According to Bandura (1986), the most distinctly human capability is our ability to *self-reflection*. We are not only agents of actions but also self-examiners of our own functioning (Bandura, 2008). This feature enables us to analyze our own behavior and reflect on our thinking; metacognition. Self-reflection allows people to change thought-patterns, which in turn may lead to changes in behavior. Through self-reflection people make sense of their experiences, explore own cognitions and self-beliefs, and engage in self-evaluation (Bandura, 2006c, 2008; Pajares, 2002a).

Within the social cognitive perspective, the concept of freedom is conceived as people's exercise of self-influence in the service of selected goals and desired outcomes (Bandura, 2008). Individuals who develop their competencies, self-regulatory skills, and enabling beliefs in their efficacy can generate a wider array of options that expand their freedom. Thus, people who cultivate their agentic capabilities are more successful in realizing desired futures than those with less developed agent recourses (Bandura, 2008).

Self-Efficacy

Self-efficacy is a key element in Bandura's social cognitive theory. It is defined by Bandura (1986) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Self-efficacy beliefs

influence the courses of action that people pursue, and is an important construct for understanding human behavior in various contexts (Bandura, 1986, 1997). Self-efficacy is the individual's future-oriented belief about what he or she can achieve in a given context, rather than a general judgment about one's abilities. In contrast, past-oriented judgments of abilities are characteristics of self-concept (Bong & Skaalvik, 2003).

A vast number of studies have revealed a strong positive relation between self-efficacy and performance (Bandura, 1977, 1997, 2006c). According to Bandura (1986, 1997), self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment. Unless people possess beliefs that their actions can produce desired outcomes, they have little incentive to act or to preserve in the face of difficulties. Bandura (1997) underscores that self-efficacy is the most pervasive among the mechanisms of human agency and provides a foundation for all other facets of agency to operate. The importance of positive self-efficacy beliefs may be illustrated by a statement of Bandura and Locke (2003) stating that:

> Efficacy beliefs affect whether individuals' think in self-enhancing or self-debilitating ways, how well they motivate themselves and persevere in the face of difficulties, the quality of their well-being and their vulnerability to stress and depression, and the choices they make at important decision points (Bandura & Locke, 2003, p. 87).

Bandura (1997) stated that "people's level of motivation, affective states, and actions are based more on what they believe, than on what is objectively true" (p. 2). Individuals behavior may therefore be better predicted by the beliefs they hold about their capabilities than by what they are actually capable of accomplishing. This is because individuals perceived self-efficacy determine how they use their knowledge and skills (Bandura, 1986, 1997). Talented people may suffer from self-doubt about capabilities they clearly possess. Belief and reality are not necessarily perfectly matched, and individuals are typically guided

by their beliefs when they engage in different activities. People's accomplishments are therefore generally better predicted by their self-efficacy beliefs than by their previous attainments, knowledge, or skills (Bandura, 1997; Pajares, 2002a).

Influences of Self-Efficacy

Self-efficacy beliefs can enhance human accomplishment in different ways. Self-efficacy influences the *choices* and the courses of action people pursue (Bandura, 1986). People usually select tasks and participate in activities in which they feel competent and avoid those in which they do not (efficacy expectations, see pp. 13-14). As mentioned above, unless people believe that their actions will have the desired consequences, they have little incentive to engage in those actions (outcome expectations, see pp. 13-14) (Bandura, 1997; Pajares, 2002a). Self-efficacy also influences *effort expenditure and persistence* (Bandura, 1986). Higher levels of perceived self-efficacy are related to greater effort, persistence, and resilience. Individuals with a strong sense of efficacy approach difficult tasks as challenges to be mastered rather than as threats to be avoided (Bandura, 1997; Pajares, 2002a, 2002b; Pintrich & Schunk, 2008).

Individuals *thought patterns and emotional reactions* are also influenced by personal efficacy beliefs. High self-efficacy contributes to create feelings of serenity in approaching difficult tasks and activities. Conversely, low self-efficacy makes people perceive activities more difficult than they really are. Such beliefs may in turn foster anxiety, stress, depression, and a narrow vision of how best to solve a problem. Self-efficacy therefore influences the level of accomplishment that one ultimately achieves. Such a function of self-beliefs can create a type of self-fulfilling prophecy in which one accomplishes what one believes one can accomplish (Bandura, 1986, 1997; Pajares, 2002a).

Sources of Self-Efficacy

The development of self-efficacy beliefs occurs mainly by obtaining information from four primary sources (Bandura, 1997, 2008). The most influential and efficient source is *mastery experience*. Outcomes from activities can be interpreted as success or failures, where the first increase self-efficacy and the latter undermines it. These interpretations affect the development of personal efficacy beliefs which are important for future involvement in similar activities (Bandura, 1997). The second source is *vicarious experience*. These experiences are observations of similar others performance on a given task. This source of self-efficacy is particularly influential when people are uncertain of their own abilities or when they have little prior experience with the relevant activity (Bandura, 2008; Pajares, 2002a). Individuals also create self-efficacy based on *verbal persuasions*. Through verbal persuasion individuals can become convinced that they possess the abilities required for a given action. It is most effective when those who convey the efficacy information are viewed as competent and reliable (Bandura, 1997, 2008). The final source of self-efficacy is *physiological and emotional reactions* such as anxiety, heartbeats, sweating, and fatigue. Such responses may be associated with prior failure and may send signals to people that affect their efficacy expectations in given situations (Bandura, 1997, 2008; Pajares, 2002a). According to Bandura (1994), it is how the individuals perceive, interpret, and process the physiological and emotional reactions that are crucial, not the intensity of them. Such reactions can function as energizers of behavior or be experienced as an inability to participate in the activity.

Efficacy Expectations and Outcome Expectations

Individuals' efficacy beliefs are not the same as their judgments of the consequences that their behavior will produce. Social cognitive theory distinguishes between *efficacy expectations* and *outcome expectations*. Both concepts are related to motivation but predict behavior differently (Bandura, 1997, 2006b; Pajares, 1997). Perceived self-efficacy is a

judgment of people's capabilities to execute given types of performances whereas outcome expectations are judgments about the outcomes (Bandura, 2006b). According to Bandura (1977), outcome expectations take three different forms which include the positive and negative *physical, social,* and *self-evaluative* outcomes. Physical outcomes are physical comfort or discomfort such as pain or pleasure. Social outcomes are reflected through others interests, social rewards, and social recognition - or in a negative sense as rejection, criticism, and punishment. Self-evaluation is people's propensity to show involvement in activities that lead to inner satisfaction. People usually avoid behaviors that lead to negative evaluations such as self-criticism (Bandura, 1997; Pajares, 1997; Wojcicki, White, & McAuley, 2009). Within these forms of outcome expectations, the positive expectations serve as incentives and the negative as disincentives.

Since outcome expectations are themselves a result of the judgments of what individuals can accomplish, outcome expectations are unlikely to contribute to predictions of behavior. Moreover, efficacy beliefs and outcome expectations are sometimes inconsistent. For instance, a high sense of efficacy may not result in behavior consistent with that belief because the individual may believe that the outcome of the activity may have undesired effects (Bandura, 2006b; Pajares, 2002a).

Mediating Mechanisms

The sense of self-efficacy the individual possesses influences decisions of behavior where cognitive, motivational, affective, and selective processes work to transform the individual's self-efficacy into action. Individuals' purposive behavior is often regulated by forethought embodying valued goals (Bandura, 1994, 1995, 2008). Through *cognitive processes*, self-efficacy affect whether individuals think optimistically or pessimistically. According to Bandura (1994, 1997), one of the major function of thought is to enable people to predict and control events that affect their lives.

Self-efficacy also plays a key role in self-regulation of *motivation*. According to Bandura (1994, 1995, 2006a), most human behavior is cognitively generated. People motivate themselves through the exercise of forethought where they form beliefs about what they are able to do. The social cognitive theory emphasizes three different forms of cognitive motivators: *causal attributions*, *outcome expectancies*, and *cognized goals* (Bandura, 1997, 2006a, 2006c). Self-efficacy operates in each of these types of cognitive motivation. For instance, people with high efficacy beliefs tend to attribute their failures to insufficient effort, whereas people with low self-efficacy tend to attribute their failures to low ability. Expectancy-value theory regards motivation as regulated by the expectation that a given course of action will produce a certain outcomes. However, people act on their beliefs about what they can do, as well as on their beliefs about the likely outcomes. There are many attractive situations that people do not pursue because they judge they lack the capabilities for them. According to Bandura (1994), the predictiveness of expectancy-value theory is therefore enhanced by including the influence of perceived efficacy beliefs. Finally, a vast number of studies show that explicit, challenging goals enhance and sustain motivation. Goals operate largely through self-influence where motivation based on goal setting involves a cognitive comparison process. By making self-satisfaction conditional on matching adopted goals, individuals can provide direction to their behavior and create incentives to persist until they fulfill their goals (Bandura, 1994, 1995, 1997, 2006a, 2006c).

Such beliefs in turn affect people's *affective reactions* because perceived self-efficacy to exercise control over stressors play a central role in anxiety arousal (Bandura, 1994, 2006a, 2006c). Individuals perceived self-efficacy affect how much stress and depression they experience in threatening situations, as well as their level of motivation. People who believe they can exercise control in such situations do not conjure up disturbing thoughts whereas

those who believe they cannot manage threats experience high anxiety arousal (Bandura, 1994, 2006a).

Finally, self-efficacy beliefs affect, through *selective processes,* how environmental opportunities and impediments are perceived. According to social cognitive theory, people are partly products of their environment. Personal efficacy can shape the courses of people's life by influencing the types of activities and environments people chose to engage in (Bandura, 2006a, 2006c). Usually, most individuals avoid activities they believe exceed their coping capabilities. However, they readily undertake challenging activities and select situations where they judge themselves as capable. Through choices individuals can cultivate different competencies, interests, and social networks that in turn determine their life courses (Bandura, 1994, 2006a).

Summary: Benefits of Self-Efficacy

Individuals' level of self-efficacy promotes information on how to perform tasks. High self-efficacy promotes positive perceptions of one's own capabilities and provides information to carry out actions. Individuals with positive efficacy beliefs tend to regard difficult tasks as challenges; those who doubt their capabilities tend to consider difficult tasks as threats. Self-efficacy beliefs foster intrinsic motivation and the ability to show involvement in various activities (Bandura, 1994, 1997). A characteristic of individuals with high self-efficacy may be that they set themselves challenging goals and strive to achieve these by making and maintaining efforts. Failures are attributed to lack of effort or knowledge, but the latter can be acquired. High self-efficacy reduces stress and decreases the likelihood of mental disorders (Bandura, 1986, 1994, 1997, 2008). Individuals with low self-efficacy are generally characterized by their doubts about their own abilities. They tend to withdraw from activities that are perceived as threatening or challenging. When they face difficulties they focus on

their lack of ability to master the activity. They typically reduce effort and give up quickly (Bandura, 1986, 1994, 1997, 2008; Pajares, 1997, 2002a).

Leadership Self-Efficacy

Leadership self-efficacy may be defined as a specific area of self-efficacy which is associated with the level of confidence in one's own knowledge, skills, and abilities associated with leading others (Hannah, et al., 2008). According to Hannah et al. (2008), it can thus be clearly differentiated from confidence in the knowledge, skills, and abilities individuals holds associated with other social roles such as a teacher (*i.e.*, teacher efficacy) or politician (*i.e.*, political efficacy).

Although the empirical research on leadership self-efficacy is scarce, there is growing evidence demonstrating its capacity to predict relevant work outcomes (Hannah, et al., 2008). For instance, previous research have shown that leaders self-efficacy is related to motivation to lead (Chan & Drasgow, 2001), organizational commitment (Paglis & Green, 2002), performance ratings from both peers and superiors (Chemers, Watson, & May, 2000; Luthans & Peterson, 2002), and positions that have higher levels of job autonomy, resource supply, and organizational support for change (Paglis, 1999, as cited in Hannah, et al., 2008). Luthans and Peterson (2002) also found that a high level of leader self-efficacy is associated with an environment that effectively overcomes obstacles (Luthans & Peterson, 2002). Moreover, leadership self-efficacy has not only been associated with higher levels of performance for individual leaders, but it has also been linked to higher levels of performance for groups. According to Chemers et al. (2000), leaders' self-efficacy is important because it affect attitudes and performance of their followers and their followers' commitment to organizational tasks (Chemers, et al., 2000). A possible mechanism to explain this link is that leadership self-efficacy may serve to increase the collective efficacy of a team (Hannah, et al., 2008).

Principal Self-Efficacy

From a social cognitive perspective, principal self-efficacy may be defined as the principals' judgments of their capabilities to plan, organize, and execute work-related tasks and deal with their relationship to people and institutions in their environment. Some empirical studies have been conducted to investigate this concept, but there seems to be no common agreement about how the construct should be conceptualized or how it should be measured. Previous research on principals' self-efficacy has focused partly on the *structure* of the construct (e.g. Brama, 2004) and partly on how it *relates* to other concepts (e.g. Imants & De Brabander, 1996; W. Smith, 2003; Tschannen-Moran & Gareis, 2004, 2005).

Brama (2004) tested a three-dimensional model to investigate the structure of principal self-efficacy. The model was comprised of organizational skills, human skills, and technical skills. A reliability analysis and exploratory factor analyses did not statistically support this model. In a later study, data were analyzed by means of both exploratory and confirmatory factor analysis. These results supported a five-component construct of principal self-efficacy comprised of efficacy for general managing, efficacy for leadership, efficacy for human relations, efficacy for managing school relationships with the environment, and instructional efficacy. The author emphasized that the concept is culture-dependent and that the components are to be reconsidered in periods of organizational change within the educational system or changes in principals' work instructions (Brama, 2004). A similar measure was developed by Tschannen-Moran & Gareis (2004) called the Principal Sense of Efficacy Scale (PSES). This instrument was based on their previous work with the Teacher Self-Efficacy Scale (TSES) (Tschannen-Moran & Hoy, 2001). The construct validity of the scale was assessed using a measure of work alienation (Forsyth & Hoy, 1978). This survey included items concerning various aspects of principals' context and work alienation. Using principal component factor analysis (PCA), the original 50-item questionnaire for personal

efficacy was reduced to 18 items. Three factors emerged: efficacy for management, efficacy for instructional leadership, and efficacy for moral leadership. All dimensions were significantly and negatively correlated with work alienation at r = -.37, -.41, -37 ($p < .01$), respectively. The researchers concluded that this scale was promising for future research on how to measure principals' sense of efficacy (Tschannen-Moran & Gareis, 2004, 2005).

Despite differences in measures of self-efficacy, the available studies indicate that principals' self-efficacy is associated with adaptive functioning. Previous research indicates that efficacious principals tend to be more persistent in pursuing goals and are more adaptable to changes (Osterman & Sullivan, 1996), and that principals' self-efficacy is related to the quality of supervision of teachers (Licklider & Niska, 1993). Principals with high self-efficacy experience higher levels of job satisfaction, and lower levels of burnout and work alienation (Friedman, 1995, 2002; Tschannen-Moran & Gareis, 2004, 2005). Dimmock and Hattie (1996) found efficacy as a valued element for principals in a school restructuring process (Dimmock & Hattie, 1996), whereas W. Smith, Guarino, Strom & Adams (2006) concluded that the quality of teaching and learning is influenced by the principals' efficacy (W. Smith et al., 2006). Moreover, Lyons and Murphy (1994) found that principals with low self-efficacy tend to use external power sources as the rights of management to impose others into desired actions where principals with high self-efficacy use internal based power sources to lead and set examples for others to follow (Lyons & Murphy, 1994).

Work Engagement

Previous studies of various occupations reveal that self-efficacy is positively related to work engagement (e.g. Halbesleben, 2010; Sweetman & Luthans, 2010). Studies have also shown that work engagement is positively associated with concepts such as job resources (e.g. support, feedback, autonomy), personal resources (e.g. self-efficacy, organizational-based self-esteem, and optimism) and job performance (e.g. extra-role performance) (Bakker, 2009;

Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). However, a literature search on principal self-efficacy and work engagement indicates that there are few studies which have focused on this specific relation among principals. Still, based on previous research of different occupations (e.g. Breso, Schaufeli, & Salanova, 2008; Prieto, 2009), it seems reasonable to expect that a similar relation may be found among principals.

Conceptualizing Work Engagement

Different conceptualizations of work engagement have been proposed for more than two decades and may particularly be seen in the consulting and development business. Thus, the concept is often expressed in conjunction with organizational development and human relations departments. According to Schaufeli and Bakker (2010), the idea of employee engagement was probably first introduced commercially in the 1990s by the Gallup organization, which conceptualized engagement as the individual's involvement, satisfaction, and enthusiasm for work (Schaufeli & Bakker, 2010). More recently, attention to work engagement has increased in academic contexts. Within this field, work engagement is often associated with the paradigm of positive psychology focusing on people's strengths and optimal functioning. This may be viewed in opposition to traditional psychology, which is often regarded as having a focus on mental illness instead of mental wellness (Bakker, Schaufeli, Leiter, & Taris, 2008; Schaufeli & Bakker, 2010).

According to Schaufeli and Bakker (2010), there is no universal consensus on how the concept of work engagement should be defined. At first glance, it seems possible to identify a distinction between definitions of work engagement in academic research and business. The academic definition is often related to the work role or work activity, whereas the business focus is on the individual's or group's relation to the organization (Schaufeli & Bakker, 2010). The latter definition does not necessarily capture the academic content of work

engagement, but may overlap with more traditional concepts such as job involvement or job satisfaction (Schaufeli & Bakker, 2010).

The concept of work engagement originated in academic research in the 1990s with the work of Kahn (1990), who conceptualized work engagement in terms of employees who put a great amount of effort into their work because they felt some type of identification with the work itself or the work role (Kahn, 1990). Rothbard (2001) derived another perspective from the work of Kahn by developing a two-dimensional motivational concept of attention and absorption (Rothbard, 2001). The attention dimension consisted of an individual's cognitive availability and the amount of time spent thinking about work. Absorption referred to the intensity of one's focus on a role (for more extensive reading, see Rothbard, 2001). This initial research seems to be both the foundation and source of inspiration for contemporary views on work engagement.

Contemporary Views on Work Engagement

Schaufeli and Bakker (2010) describe two different but related views of work engagement that they consider to be a positive work-related state of well-being or fulfillment (Bakker, et al., 2008). The first approach considers work engagement as the opposite or positive antithesis of burnout, a measurement comprised of three dimensions consisting of exhaustion, cynicism, and reduced professional efficacy. Low scores on the first two dimensions and high scores on professional efficacy indicate engagement (Maslach, Schaufeli, & Leiter, 2001). The alternative view considers work engagement as a separate concept, which correlates negatively with burnout. In this view, work engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption (Schaufeli, Salanova, González-romá, & Bakker, 2002). According to this definition, work engagement refers to a feeling of fulfillment and is a persistent and pervasive affective-cognitive state not focused on any particular object, event, individual or behavior

(Schaufeli & Bakker, 2010; Schaufeli, Bakker, & Salanova, 2006). People who experience work engagement have a sense of an energetic and effective connection with their work activities and see themselves as being able to deal well with the demands of their job (Schaufeli & Bakker, 2004).

The three dimensions that constitute work engagement are described separately with different properties. Vigor is characterized by high levels of energy and mental strength. The individual has a desire to put some effort into work and possesses the ability to persist in the face of difficulties. Dedication refers to being involved in work and experiencing significance, enthusiasm, inspiration, pride, and challenge, while absorption refers to being concentrated and involved in one's own work (Bakker, et al., 2008; Schaufeli & Bakker, 2010; Schaufeli, et al., 2006; Schaufeli, et al., 2002).

The Utrecht Work Engagement Scale

The Utrecht Work Engagement Scale (UWES) is based on a definition that includes vigor, dedication, and absorption (Bakker, et al., 2008; Schaufeli & Bakker, 2010; Schaufeli, et al., 2006; Schaufeli, et al., 2002). The UWES is available in different languages and consist of a full version containing 17 items, a short version containing 9 items, and a student version (Schaufeli & Bakker, 2010). The instrument has been tested in various countries where the instrument has exhibited both a stability and factorial invariance between nations and occupational groups. In addition, the three-factor structure repeatedly shows a best fit to data compared to a one-factor structure using confirmatory factor analysis, although the three dimensions are usually strongly correlated. Moreover, various studies have been conducted to investigate the discrepancy between the UWES definition of work engagement and related concepts. This concept is different from burnout (Schaufeli & Bakker, 2010; Schaufeli, et al., 2002), job involvement (Hallberg & Schaufeli, 2006), organizational commitment (Hallberg & Schaufeli, 2006), and workaholism (Schaufeli, Taris, & Rhenen, 2008).

Previous Research

Previous research within the UWES framework has documented that work engagement is positively related to different job characteristics such as resources and motivators (Schaufeli & Bakker, 2004). Resources and motivators include support from one's co-workers and superiors, performance feedback, coaching, job autonomy, task variety, and training facilities (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Salanova, Llorens, Cifre, Martinez, & Schaufeli, 2003; Schaufeli & Bakker, 2004, 2010). Research on the consequences from the experience of work engagement has demonstrated that the concept is related to positive attitudes towards work. This includes job satisfaction, commitment, and low turnover intentions (Demerouti et al., 2001; Schaufeli & Bakker, 2004). Additionally, work engagement is also related to positive organizational behavior such as personal initiative, learning motivation (Sonnentag, 2003), and extra-role behavior (Salanova, Agut, & Peiro, 2005). Finally, in a study by Salanova et al. (2005) of Spanish hotels and restaurants, the researchers found that work engagement was positively related to job performance. The study examined the mediating role of the service climate in the prediction of employee performance and customer loyalty. They found that organizational resources and work engagement predict the service climate, which in turn predicts employee performance and customer loyalty (Salanova, et al., 2005).

Work Engagement and Self-Efficacy

Research on self-efficacy has shown that efficacy beliefs predict motivational responses such as effort and persistence, whereas self-efficacy is negatively related to stress and anxiety (Bandura, 1977, 1982, 1994, 1997, 2001). Hence, it is reasonable to expect a positive relation between self-efficacy and work engagement. This expectation is supported by several studies. Attention has been devoted to the role of self-efficacy in the Job Demands-Resources Model (JD-R) (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Prieto (2009)

expanded the JD-R model and regarded self-efficacy as a personal resource in the prediction of work engagement. The results revealed that self-efficacy significantly predicted work engagement as measured by the UWES (Prieto, 2009). Another paper (Sweetman & Luthans, 2010) discussed the relation between psychological capital and work engagement. Psychological capital can be thought of as a concept similar to personal resources which include self-efficacy, optimism, hope, and resilience (Sweetman & Luthans, 2010). According to Sweetman and Luthans' discussion, these concepts facilitate work engagement and they argued that efficacy is the most important psychological mechanism for producing positive work-related outcomes. This type of relation is also supported in a meta-analysis by Halbesleben (2010). The meta-analysis searched for correlations between various concepts and work engagement. In the analysis, self-efficacy was regarded as a resource which was hypothesized to be positively associated with work engagement. The analysis revealed that self-efficacy had an estimated correlation with engagement of .50, ($p < .01$) to overall engagement.

A study by Xanthopoulou et al. (2007) examined the relation between personal resources (self-efficacy, organizational-based self-esteem, and optimism) and work engagement in a study of Dutch technicians. The results showed that engaged employees are highly self-efficacious and believe they are able to meet the demands they face in a broad array of contexts (Xanthopoulou, et al., 2007). Finally, and most relevant to the present study, Bakker, Gierveld and Van Rijswijk (2006) found in a study of female principals that those with the most personal resources scored highest on work engagement. In particular, they found that resilience, self-efficacy, and optimism contributed to both work engagement and a positive relation between principals' work engagement and teacher ratings of performance and leadership. Furthermore, the analysis revealed that engaged principals scored higher on in-role and extra-role performance and that work engagement was also strongly related to

creativity. The higher the principals' levels of work engagement, the better they were able to come up with a variety of ways to deal with work-related problems. Finally, engaged school principals were seen as transformational leaders – able to inspire, stimulate, and coach their co-workers (Bakker et al., 2006).

Burnout

The educational system is dynamic and principals need to cope with complex tasks and relations which often are subject to change (Møller & Fuglestad, 2006). Complex and dynamic jobs involve exposure to a wide range of pressures and employees in such positions are vulnerable to burnout (Allison, 1997; Whitaker, 1995). It is reasonable to expect that principals may experience some kind of stress although the reasons may differ. Hopefully most principals cope successfully with their tasks and relations, but burnout may be the endpoint of unsuccessful coping.

According to Maslach (2003), burnout is a psychological syndrome that involves a prolonged response to stressors in the workplace (Maslach, 2003). The experience of burnout is conceptualized as resulting from long-term occupational stress, particularly among workers who deal with other people in some capacity, for instance in healthcare, social services, or education (Maslach, et al., 2001; Schaufeli, Leiter, & Maslach, 2009). The focus on burnout in professions which are related to other people has led to research in a variety of fields, including teachers and principals (Combs, Edmonson, & Jackson, 2009; Friedman, 1995, 1998; Skaalvik & Skaalvik, 2009, 2010).

Conceptualizing Burnout

The term burnout first appeared in the 1970s especially among people in the human services. The initial research was characterized by various exploratory studies which had the goal of articulating the phenomenon (Maslach, et al., 2001). In the early phases there was no common agreement on the definition of burnout and researchers used different methods in the

approach of investigating the concept. Despite these differences there was a common consensus about three core dimensions which were assumed to constitute the concept: emotional exhaustion, depersonalization, and reduced personal accomplishment. Different approaches within the field of burnout research exist (e.g. Friedman, 1995; Maslach, et al., 2001). The most pronounced work is probably conducted by Maslach who developed a multidimensional theory of burnout (Maslach, et al., 2001). This theoretical orientation takes into consideration the three dimensions and seems to be the most dominant approach in the field (Maslach, et al., 2001; Schaufeli, et al., 2009).

Dimensions

Burnout is thought to evolve gradually and is the result of a chain reaction over time (Schaufeli & Enzmann, 1998). One suggestion is that the first stage of burnout is characterized by stress which may be a result of an imbalance between resources and the demands of the job. The second stage is characterized by an experience of emotional tension, fatigue and exhaustion. The third stage consists of a number of changes in attitude and behavior (Schaufeli & Enzmann, 1998).

According to Maslach et al. (2001), the most obvious manifestation of burnout is emotional exhaustion. This dimension is therefore the most analyzed and reported dimension of burnout in the research literature. Emotional exhaustion is conceptualized as the key element because people who suffer from burnout mainly tend to refer to the experience of exhaustion (Maslach, et al., 2001). According to Pines and Aronsen (1988), the exhaustion dimension of burnout should also include physical exhaustion which is characterized by low energy and chronic fatigue (Pines & Aronson, 1988). Individuals experiencing exhaustion are characterized by a chronic state of physical or emotional depletion which can be described as a feeling of being overextended and exhausted by one's work (Maslach, 2003; Schaufeli, et al., 2009; Schaufeli, et al., 2002). Because of the strong manifestation of exhaustion some

researchers have claimed that this dimension is sufficient for measuring burnout (Shirom, 1989). Maslach (2001) retorts that the remaining dimensions are important because exhaustion fails to capture important aspects of the relationship between people and their work. Exhaustion is not only experienced as uncomfortable for the individual, it also prompts actions to distance oneself emotionally and cognitively from work most likely because of work overload. For burnout among principals the dimension of depersonalization refers to a negative and cynical attitude towards ones colleagues, whereas reduced personal accomplishment refers to tendencies where principals evaluate themselves negatively as well as they experience the absence of the feeling of doing a meaningful job.

The Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Leiter, 1996) measures the three core dimensions of burnout and is available in three different versions; a version for human services, one for educators, and one general survey. Research indicates that the three dimensions of burnout represent independent factors and cannot be added up to one single measure (Byrne, 1994). The instrument has been tested in different cultures and provides both stability and factorial invariance between nations and occupational groups (Maslach, et al., 2001). Studies have been conducted to assess discriminant validity and have investigated the discrepancy between burnout and related concepts. According to Maslach et al. (2001), the two most pronounced concepts are depression and job satisfaction. Burnout can be differentiated from depression because burnout is a problem that is more directly related to the work context. Depression, on the other hand, tends to pervade every domain of a person's life (Maslach, et al., 2001). As for job satisfaction, the issue concerns the commonly found negative correlation between the concepts. Are the constructs identical? Maslach et al. (2001) states that the correlations between burnout and job satisfaction are not large enough to

conclude that they are identical. But they are clearly linked. Still, it may be unclear to which degree burnout precedes or follows job satisfaction.

Previous Research

Several studies have demonstrated that burnout is related to self-efficacy (e.g. Evers, Brouwers, & Tomic, 2002; Sari, 2005; Skaalvik & Skaalvik, 2007, 2009, 2010). Burnout is thus associated with decreased job performance, reduced job commitment (Tomic & Tomic, 2008), and stress-related health problems (Maslach, et al., 2001). Job-related stressors such as work load and time pressure correlates highly with burnout. Previous research has shown that there are several sources that influence or predict principals' burnout. A study by Friedman (2002) indicates that difficulties with teachers and demanding parents may be among the main stressors that contribute to principal burnout (Friedman, 2002). Other frequent sources of burnout are issues such as complying with organizational rules and policies, excessively high self-imposed expectations, the feeling of having a to heavy work load, increased demands, and decreasing autonomy (Friedman, 1995, 1998, 2002; Sari, 2005; Whitaker, 1995; Whitehead, Ryba, & O'Driscoll, 2000).

Job Satisfaction

Previous studies indicate that job satisfaction has implications for work-related motivation, well-being, and turnover intentions (e.g. Chen & Scannapieco, 2010; Rooney, Gottlieb, & Newby-Clark, 2009; Tzeng, 2002; Weisberg & Sagie, 1999). The traditional model of job satisfaction focuses on all the different feelings that an employee possesses in relation to the job (Lu, While, & Barriball, 2005). One of the most cited definitions of job satisfaction is, according to Schaufeli and Bakker (2010), the one stated by Locke (1976). He defined job satisfaction as a pleasurable or positive emotional state resulting from the appraisal of one's job (Locke, 1976). Several similar definitions have been proposed by other researchers (e.g. Cranny, Stone, & Smith, 1992; Schultz, 1982; P. Smith, Kendall, & Hulin,

1969; Weiss, 2002) indicating agreement that job satisfaction may be regarded as an affective orientation or attitude towards one's job (Newby, 1999).

Conceptualizing Job Satisfaction

Thus, there seems to be at least some general consensus about the conceptualization of job satisfaction among researchers. Cranny et al. (1992) included multiple theoretical perspectives and proposed in their opinion a "consensus" definition. They suggested that "job satisfaction is an affective reaction to one's job, resulting from the incumbent's comparison of actual outcomes with those that are desired" (p. 1). Weiss (2002) argues that this definition of job satisfaction have inappropriately defined the concept as an affect and in doing so disregarded the differences between separated constructs. His concerns are mainly about whether job satisfaction should be considered in terms of affects or attitudes (Weiss, 2002). Despite his view, it seems that researchers do not emphasis these differences in particular. Instead, there seems to be less agreement about the relation between job satisfaction and other concepts (e.g. performance) and which factors that contributes to increase or decrease individuals levels of job satisfaction (Judge, Thoresen, Bono, & Patton, 2001; Newby, 1999).

Theoretical Perspectives

Various theories of job satisfaction have been developed and are currently in use. Historically, this includes a shift from research on job satisfaction based on theories as Maslow's (1954) theory of human needs (Maslow, 1954) to more emphasis on cognitive processes (Lu, et al., 2005). Some theorists claim that both intrinsic and extrinsic factors affect job satisfaction (e.g. Herzberg, Mausner, & Snyderman, 1959). For instance, in the two-factor theory proposed by Herzberg et al. (1959), job satisfaction and dissatisfaction are two separate and sometimes even unrelated phenomena. Intrinsic factors include recognition, achievement, responsibility, and advancement, whereas extrinsic factors include salary, working conditions, supervision, and administrative policies. Intrinsic factors are related to

the actual execution of the job where the possibility to achieve growth and success in performance are identified with job satisfaction. Extrinsic factors are not identified with the job itself but with the environmental conditions and these are thought to contribute to job dissatisfaction (Gui, Barriball, & While, 2009; Herzberg, et al., 1959; Lu, et al., 2005).

In addition, research has also focused on whether one should measure global or specific aspects of the concept. Job satisfaction can be regarded both as an affective orientation or an attitude. Phrased differently job satisfaction can manifest itself as a global feeling towards one's work or as related constellations of attitudes about various aspects or facets of the job. The global approach is most useful when the overall job satisfaction is of interest while the facets approach is used to explore which parts of the job that produce satisfaction or dissatisfaction (Lu, et al., 2005). The latter can add up the facets and be used as a measure for overall job satisfaction (Lu, et al., 2005). However, there may be a problem with measuring facets and let those indicate overall job satisfaction. This is due to differences in individuals' perception of which aspects of work that are experienced as satisfying. The problem with such measures is therefore that it overlooks the fact that the impact of different facets on overall job satisfaction is dependent on how important each of the facets are for the individual. In the present research job satisfaction is therefore measured as an overall concept.

Previous Research

Despite some controversies about how the construct should be conceptualized and how it should be measured, various studies indicate that job satisfaction is related to self-efficacy (e.g. Judge, et al., 2001; Klassen & Chiu, 2010). Job satisfaction can also act as a buffer against negative influences in the workplace such as occupational stress (Saane, Sluiter, Verbeek, & Frings-Dresen, 2003). Research on school assistant principals has shown that job satisfaction is related to their beliefs of advancement in their school system, their feeling of accomplishment, and to what extent they feel that they use their talents and skills

(Sutter, 1996). Moreover, Friesen, Holdaway and Rice (1984) demonstrated in their study that school principals' job satisfaction were predicted significantly by three factors; given responsibility, perceived job autonomy, principal–teacher work involvement, and liaison at district level (Friesen et al., 1984).

Job Autonomy

A meta-analysis by Humphrey, Nahrgang, and Morgeson (2007) provides compelling evidence that perceived job autonomy is positively related to performance, job satisfaction, commitment, and intrinsic motivation, whereas negatively related to absenteeism, stress, and burnout. Research on individual and team autonomy indicates a positive relation between perceived job autonomy and self-efficacy (e.g. van Mierlo, Rutte, Vermunt, Kompier, & Doorewaard, 2006; Wang & Netemeyer, 2002). Increased employee control is also associated with increased employee motivation, with respect to increased task mastery and seeking out novel challenges (Morgeson, Delaney-Klinger, & Hemingway, 2005). Such findings are also supported by self-determination theory (SDT) (Deci & Ryan, 2000; Gagne & Deci, 2005). SDT proposes that satisfaction of the need for autonomy is essential for the emergence and sustainment of intrinsic motivation. According to Gagne and Deci (2005), perceived job autonomy influences a range of employee outcomes, such as intrinsic motivation and work performance.

Conceptualizing Job Autonomy

Principal's perceived job autonomy may be conceptualized as the extent to which they perceive that their job allows freedom, independence, and discretion to schedule work, make decisions, and choose among methods to perform tasks (Dysvik & Kuvaas, 2011; Humphrey, et al., 2007). According to Dysvik and Kuvaas (2011), job autonomy is an essential tenet in theories of motivation (Dysvik & Kuvaas, 2011; Gagne & Deci, 2005; Humphrey, et al., 2007). For instance, self-determination theory argue for the existence of basic psychological

needs which must be satisfied in an individual's environment in order to achieve personal growth and development (Deci & Ryan, 2000). These needs are considered universal across time, gender, and culture. Individuals seek optimal stimulation and challenging activities because they have a basic need for competence, autonomy, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2000, 2006; Schunk, Pintrich, & Meece, 2008).

Most relevant for the present study is the need for autonomy, i.e. whether the principals feel self-determined and perceive their actions to be self-driven. Self-determination theory proposes that motivated behavior varies according to whether it is experienced as autonomous or controlled (Black & Deci, 2000). Autonomous behavior has an internally perceived locus of control and is performed out of interest or personal importance (intrinsic motivation). Controlled behavior has an externally perceived locus of control and is experienced as being pressured by interpersonal contingencies or demands (extrinsic motivation) (Black & Deci, 2000). According to Black and Deci (2000), intrinsically motivated behavior is the prototype of autonomy, while extrinsically motivated behavior is sustained because of an external contingency. A vast number of studies indicate that the quality of experience and performance may be very different when individuals behave for intrinsic or extrinsic reasons (Ryan & Deci, 2000), and that extrinsic incentives and pressures can undermine motivation to perform even inherently interesting activities (Deci & Ryan, 2000; Eccles & Wigfield, 2002).

Previous Research

Various studies have been conducted to investigate the benefits of self-determination. Research on different professions reveals that employees reports higher levels of intrinsic motivation, job satisfaction, and commitment to their jobs when the need for autonomy is satisfied (e.g. Chung-Yan, 2010; Koustelios, Karabatzaki, & Kousteliou, 2004; Rooney, et al., 2009). Research on autonomy supportive vs. controlled environments also indicates that an

autonomy supportive climate foster higher intrinsic motivation and supports the internalization process (Deci, Schwartz, Sheinman, & Ryan, 1981; Grolnick & Ryan, 1989).

Motivation to Quit

A vast number of studies of different professions indicate that there are numerous work-related factors that may contribute to employees' motivation to quit the job or affect their turnover intentions (e.g. Chen & Scannapieco, 2010; Hayes et al., 2006; Hong, 2010; Tzeng, 2002). For instance, previous research indicates that there is a negative relation between burnout and motivation (e.g. Hakanen, Bakker, & Schaufeli, 2006). Leung and Lee (2006) found, in a study of Hong Kong teachers, a positive relation between burnout and intention to leave the profession. According to Leung and Lee (2006), many teachers experience a great deal of stress which may in turn lead to detachment, absenteeism, and ultimately leaving the classroom for alternative careers (Leung & Lee, 2006). The opposite results have been found regarding job satisfaction (e.g. Tzeng, 2002). Studies of job satisfaction indicate that job satisfaction increase engagement and therefore may function as a barrier against motivation to quit. Moreover, studies have investigated the relation between self-efficacy and motivation to quit. Since self-efficacy influences choices of action, how much effort is expended on an activity, and how long people will persevere when confronted with obstacles, self-efficacy may serve as a buffer against thoughts about quitting the job (e.g. Chen & Scannapieco, 2010; McNatt & Judge, 2008; Niu, 2010).

Self-Efficacy and Motivation to Quit

There are no official Norwegian statistics showing either principal attrition or principal turnover. However, it is important to note that motivation to quit or turnover intentions are not the same as actual quitting behavior. According to LeCompte and Dworkin (1991), many who are motivated to quit never leave their jobs. Previous studies of teachers reveal weak associations between the desire to quit and actual quitting. The belief in an

alternative role is often a necessary precursor of actual quitting behavior because many people have invested much in their careers (Dworkin, 1987). Studies also indicates that individuals locus of control (see Rotter, 1966) is related to actual quitting behavior. Individuals who have an external locus of control are much less likely to actually quit than those who have an internal locus of control. Individuals with an internal locus of control may to a larger degree possess trust in their abilities to make a move (Dworkin, 1987; LeCompte & Dworkin, 1991). Similar patterns might also apply to self-efficacy.

Contextual Constraints

Perceived contextual constraints to autonomy are defined as contextual elements that may restrict the principals' perceived latitude in their exercise of school leadership. In the present research the contextual constraints comprises of financial and administrative constraints, employee participation, municipal authority, and national evaluation programs. *Financial and administrative constraints* concerns whether the principals experience that finances and lack of administrative resources restricts their latitude whereas e*mployee participation* focuses on the perceived restrictions that may arise from codetermination and trade unions. *Municipal authority* concerns whether the principals experience that the municipal authority and their contract of employment are perceived as restricting. Finally, *national evaluation programs* concerns whether the principals experience that the national evaluation programs restrict latitude.

Previous studies of teachers have shown that similar contextual constraints (e.g. time constraints, administrative pressure, the curriculum, and evaluation) are negatively related to the teachers' experience of job autonomy, self-efficacy, and well-being (e.g. Pelletier, Séguin-Lévesque, & Legault, 2002; Pelletier & Sharp, 2009; Taylor, Ntoumanis, & Standage, 2008). For instance, Leroy, Bressoux, Sarrazin, and Trouilloud (2007) conducted a path analysis in order to examine teachers' perceptions of pressures at work. Their study revealed that

perceived pressures had a negative impact on reported autonomy support, but the influence was also mediated by self-efficacy.

Self-Efficacy and Contextual Constraints

Principals' perceived self-efficacy may affect their perceptions of the contextual constraints. According to Wood and Bandura (1989), individuals' belief systems regarding how controllable an environment is may exert a substantial impact on how to deal with it. Wood and Bandura (1989) point out two aspects that are especially relevant. The first concerns the level of self-efficacy needed to effect changes through effort and the use of capabilities and resources, whereas the second aspect concerns how changeable or how controllable an environment actual is. These two aspects represent the level of constraints and opportunities that are available to exercise personal efficacy (Wood & Bandura, 1989). For instance, individuals who believe the environment is controllable are motivated to fully exercise their personal efficacy, which enhances the likelihood of success. Experiences of success in turn provide behavioral validation of personal efficacy and environmental controllability. Conversely, when individuals approach situations as largely uncontrollable, they are likely to exercise their efficacy weakly, which breeds failure. This may over time decrease perceived self-efficacy and beliefs about how much environmental control is possible (Wood & Bandura, 1989).

Theoretical Hypotheses

Norwegian principals are responsible for all aspects of school management as well as future development. The exercise of these responsibilities requires the expectation to cope successfully (self-efficacy) in a number of different areas of functioning. Since self-efficacy is associated with adaptive functioning and strongly related to performance, principals should preferably experience high levels of self-efficacy in diverse areas in order to deal efficiently with their work-related tasks. As pointed out above, self-efficacy influences individuals'

cognitions and emotions. Thus, principals level of self-efficacy should have implications for their experience of work engagement, burnout, job satisfaction, perceived job autonomy, motivation to quit, and perceived contextual constraints. Theoretical hypotheses regarding the relation between self-efficacy and the other concepts in the study are provided in the following subsections.

Self-Efficacy, Work Engagement and Job Satisfaction

According to Bandura (1997), high self-efficacy promotes positive perceptions of one's own capabilities. High self-efficacy reduces stress and is associated with overcoming environmental obstacles. One may assume that individuals who believe in their abilities and competence to perform a job will be more satisfied in it. *Hence, it is expected that principals' self-efficacy will be positively related to work engagement and job satisfaction (see Paper 1, 2, and 3 for details).*

Self-Efficacy, Burnout and Motivation to Quit

As pointed out by Bandura (1997), individuals with a low self-efficacy view many aspects of their environment as being fraught with danger, dwell in their coping deficiencies and magnify the severity of possible threats. Hence, it is expected that low mastery expectations among principals will increase occupational stress and emotional exhaustion which in turn may have implications for motivation to quit. *Thus, the relation between principals' self-efficacy and both burnout and motivation to quit is expected to be negative (see Paper 2 and 4 for details).*

Self-Efficacy and Job Autonomy

Principals' perceived job autonomy may be influenced by both personal and environmental factors. According to self-determination theory, the social environment influences the extent to which individuals perceive themselves as autonomous or controlled

(Black & Deci, 2000). However, one may also assume that perceived job autonomy is to some extent influenced by principals' self-efficacy. As noted above, self-efficacy determines how environmental opportunities and impediments are perceived by the individual. For instance, principals with high efficacy beliefs may experience greater latitude in their work. *Thus, the relation between principals' self-efficacy and perceived job autonomy is expected to be positive (see Paper 3 and 4 for details).*

Self-Efficacy and Perceived Contextual Constraints

The relation between principals' self-efficacy and contextual constraints to autonomy is expected to be negative (see Paper 3 for details). Individuals who believe they are inefficacious are likely to conduct limited change, even in environments that provide potential opportunities. Conversely, individuals with high self-efficacy may through ingenuity and perseverance figure out ways of exercising control, even in environments that contain limited opportunities and many constraints (Wood & Bandura, 1989).

Summary

This chapter reviewed the theoretical perspectives and concepts that underlie the present research. Hypotheses regarding the relation between self-efficacy and the other concepts in the study were also provided. However, relations between these concepts could not be empirically explored without an instrument for capturing principal self-efficacy. The next chapter reviews the initial development of the Norwegian Principal Self-Efficacy Scale (NPSES) and the methodology.

METHOD

The Norwegian Principal Self-Efficacy Scale (NPSES) is employed in the four related papers that constitute the basis for the present thesis. The development of the NPSES was initiated with qualitative interviews with principals from different public elementary schools and middle schools. A questionnaire was developed based on these interviews and the data collected were analyzed by means of confirmatory factor analyses (CFA) and structural equation modeling (SEM).

Initial Interviews

According to Bandura (2006b), there is no all-purpose measure of perceived self-efficacy. A *one measure fits all* approach usually has limited explanatory and predictive value because most of the items may have little or no relevance to the domain of functioning in question. Items in such measures are usually cast in general terms divorced from the situational demands and leave much ambiguity about exactly what is being measured or the level of task and situational demands that must be managed. Scales of perceived self- efficacy must be tailored to the particular domain of functioning that is the object of interest and should accurately reflect the construct under study (Bandura, 2006b). For that reason, scales for measuring principals' self-efficacy must be tailored to the specific domain and reflect specific tasks and responsibilities (Bandura, 2006b). The development of the NPSES was therefore initiated with five semi-structured qualitative interviews with principals from different schools to assure that relevant dimensions were included.

Participants

Participants were principals from different public elementary schools and middle schools (1^{st} - 10^{th} grade) from two Norwegian counties. Sampling from two different counties was conducted to account for local variances in educational governance and school culture. The sample was drawn using a combined convenient and stratified sampling method. A list

containing detailed information of all the schools in the two counties was obtained. Further selection was based on the following criteria: (1) location (rural or urban schools), (2) number of pupils, and (3) gender of the principal.

A total of twelve schools were drawn from the list representing the sampling criteria's. The number of males and females was equally distributed and they represented both urban and district schools. School size varied across the sample where urban schools generally had a greater number of pupils than the rural schools. Five out of twelve invited participants had the opportunity to participate in the study. This number of respondents was considered as satisfying based on suggestions from qualitative researchers (e.g. Kvale, Rygge, Brinkmann, & Anderssen, 2009; Postholm, 2010).

The sample consisted of three males and two females, representing three urban schools and two rural schools. The age of the principals varied from 35 to 65.

Data Collection and Analysis

The interviews took place at each respondent's school and lasted for approximately one and a half hour. The interviews focused on six main areas: (1) *Immediate thoughts about being principal,* (2) *own expectations to the role as principal,* (3) *own experience of leadership and goal achievement,* (4) *important relations,* (5) *challenges,* (6) *strain* (see Appendix A for detailed interview guide). The interviews were conducted semi-structured and a tape recorder was used to record the conversation. The conversation was transcribed after the interview.

The main objective of the interviews was to obtain a description of a typical working day. Data collected from the interviews was sorted into categories of tasks, responsibilities, and relations that the principals perceived as important aspects of their functioning. Van Etten, Pressly, McInerney and Darmanegara Liem (2008) describe this as an inductive qualitative research design in which researchers approach their study with a vague hypothesis;

in this case, it was an idea of what categories would appear. A primary focus was to induce categories that are viewed as credible because they are based on analyses of data and then tested in a subsequent deductive quantitative study (Van Etten et al., 2008).

Results

Eight categories were derived from the interviews. The constitution of the dimensions was based on both the respondents' statements and previous research (e.g. Benestad & Pleym, 2006; Grødem, 2006; Grøterud & Nilsen, 2005; Møller & Fuglestad, 2006; Ottesen & Møller, 2011). They were developed to cover various aspects of a principal's work that were assumed to be relevant (see Table 1). A questionnaire was developed on the basis of these categories. Item construction was conducted following Bandura's recommendations (Bandura, 1997, 2006b). Since self-efficacy is concerned with perceived capabilities, the items should contain verbs such as "can" or "be able to" in order to make it clear that the item asked for mastery expectations because of personal competence. The subject in each statement should be "you" since the aim is to assess each principal's subjective belief about his or her own capability. Each item should also contain a barrier. The latter point is underlined by Bandura (1997) stating that "if there are no obstacles to surmount, the activity is easy to perform, and everyone has uniformly high perceived self-efficacy for it" (p. 42).

The questionnaire initially consisted of 40 items that addressed a multidimensional conceptualization of principal self-efficacy. Data from the pilot study were then subjected to exploratory factor analyses were only factor loadings below 0.4 on other factors were accepted. All unsound items were eliminated and finally 22 items constituting the eight dimensions remained (see Appendix B for the rotated factor solution).

Table 1: The eight dimensions constituting the NPSES

Dimension	Description
Instructional leadership	Principal's self-efficacy for managing and developing the schools educational platform.
Economic management	Principal's self-efficacy for economic management, e.g. keep track of finances.
Municipal authority	Principal's self-efficacy for cooperating adequately with the municipal authority.
Parental relations	Principal's self-efficacy for cooperating adequately with parents.
Local community	Principal's self-efficacy for using resources (people, areas, institutions) in the community.
Administrative management	Principal's self-efficacy for administrative and leadership tasks.
Teacher support	Principal's self-efficacy for supporting teachers, e.g. who are struggling with strain or exhaustion.
School environment	Principal's self-efficacy for developing a good school environment and positive climate for teachers and pupils.

Summary

Based on interviews with principals in Norwegian elementary and middle schools, eight areas of principals' functioning and responsibilities were identified. The NPSES was then developed to measure the eight different dimensions of principal self-efficacy. The remaining analyses in the present thesis are of quantitative nature. A brief review of the methodology is provided in the next sub section.

CFA and SEM Analysis

Confirmatory factor analysis (CFA) and structural equation modeling (SEM) are powerful statistical tools for examining the relationship between latent constructs and test a priori hypotheses regarding relationships between observed and latent variables. This methodology takes a confirmatory approach to the analysis of data (Byrne, 2010; Jackson, Gillaspy Jr, & Purc-Stephenson, 2009). Since CFA is part of the larger family of SEM, it usually plays an essential role in evaluating the measurement model before a structural

analysis is conducted. Structural analysis is then used for specifying and estimating models of linear relationships between both observed and latent variables (Jackson, et al., 2009; MacCallum & Austin, 2000).

According to Jackson et al. (2009), challenges with SEM often occur because the measurement models of the structural analysis consist of issues that are not properly investigated. Measurement models should first be examined and it is essential that they reflect the desired constructs or factors under study. CFA was initially conducted to investigate the measurement models in the present studies.

Fit Indices

The collected data constitute an empirical covariance matrix. This matrix is the foundation for structural equation modeling. When conducting SEM, the analysis produces an estimated population covariance matrix based on the model specified. A key element of SEM is to assess whether the model produces an estimated matrix that is consistent with the sample matrix (Tabachnick & Fidell, 2007). This consistency is investigated through different measurement indices of goodness of fit. If goodness of fit is adequate it supports the plausibility of the model specified. Different measures of fit are available and are assessed through indices such as CFI, IFI, TLI, and RMSEA, as well as the chi square test-statistics. For the CFI, IFI and TLI indices, values greater than .90 are typically considered acceptable and values greater than .95 indicate a good fit to data (Byrne, 2010; Hu & Bentler, 1999). For well specified models, an RMSEA of .06 or less indicates a good fit (Hu & Bentler, 1999).

Software

The analyses were conducted using the AMOS 19 software. Maximum likelihood estimation was employed to estimate all models based on their corresponding covariance matrix. Most of the analyses in AMOS are available with missing data. When confronted with missing data the software performs state-of-the-art estimation using full information

maximum likelihood (FIML) instead of relying on ad-hoc methods like list- or pairwise deletion (Arbuckle, 2009).

Bootstrapping

Since AMOS 19 doesn't provide standard errors (SE) and confidence intervals (CI) for all estimates, bootstrap analyses was performed to estimate approximate SE and CI for the total and indirect effects. The bootstrap method is a versatile method for estimating the sampling distribution of parameter estimates; however, it requires complete data (Arbuckle, 2009; Byrne, 2010). Some analyses therefore used an imputed data set. An Expectation Maximization (EM) imputation of missing data was conducted using PASW Statistics 18. The EM imputation use an algorithm to find the maximum likelihood estimates of the means and the covariance matrix and uses these estimates to substitute the missing values (Arbuckle, 2009). It is reported when the EM imputed set is used and the results are compared with the findings from the original dataset.

PILOT STUDY

The pilot study was conducted to test and validate the NPSES. Another motive for the implantation of the pilot study was to have the opportunity to revise and improve the instrument before it was employed on a larger sample.

Participants and Procedure

Participants in the pilot study were principals of public elementary schools and middle schools (1^{st} - 10^{th} grades) in Norway. A total of 569 public schools were randomly drawn from a list containing 2,900 schools, representing all the public schools in Norway. Of the 569 principals who were invited to participate in the survey, 300 responded positively. This amounts to a response rate of 53%, which may be considered low with respect to selectivity. However, considering the randomly drawn sample, non-responses are assumed to be random.

Data were collected using an electronic questionnaire. Information about the study and an invitation to participate were first distributed by mail to each of the respondents. Two weeks later, each respondent received a personal link to the survey which was sent by e-mail.

The sample consisted of 52.8% males and 47.2% females. The age of the principals ranged from 32 to 69 years old, and the mean age was 52 years. The average amount of teaching experience before becoming a principal was 19 years and the average number of years of managing experience was 11. The sample consisted of principals from different school levels: 58.7% from elementary schools, 15.3% from middle schools and 19.7% from elementary and middle schools combined. School size varied from 6 to 1,300 pupils, with an average of 232.

Paper 1

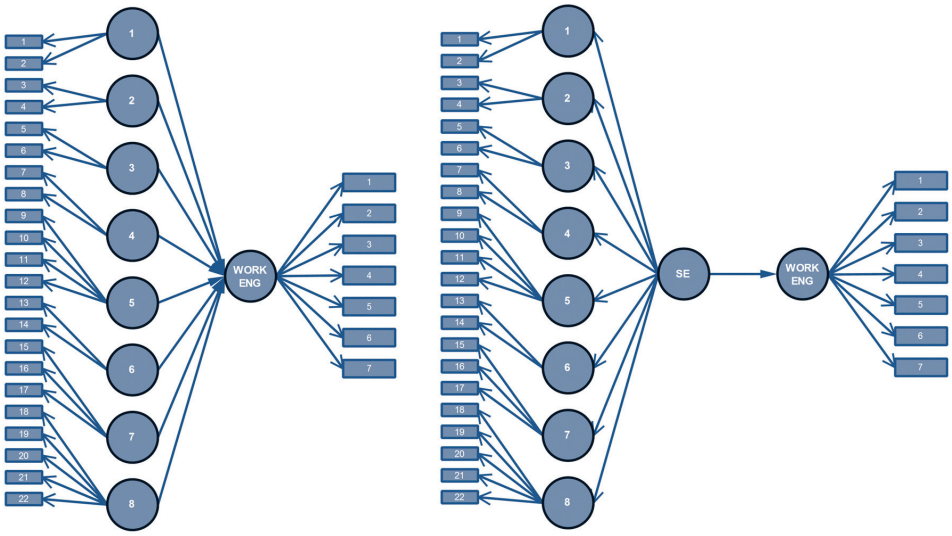
Objectives

Paper 1 is based on data from the pilot study. It is entitled: *Principal self-efficacy and work engagement: Assessing a Norwegian Principal Self-Efficacy Scale*. One purpose of this

study was to test the factor structure of the NPSES. Another purpose was to investigate the relation between principals' self-efficacy and work engagement.

Principal self-efficacy was measured by the NPSES. Work engagement was measured by a modified version of the Utrecht Work Engagement Scale (UWES). Three models of the NPSES and the UWES were initially investigated through CFA (see *Paper 1* for illustrations of the models) before two structural equation models were tested (Figure 2). Both models specified principal self-efficacy as an exogenous variable and work engagement as an endogenous variable.

Figure 2: Two theoretical models of the relation between the NPSES and UWES



1=Economic management, 2=Instructional leadership, 3=Parental relations, 4=Municipal authority, 5=Administrative management, 6=Teacher support, 7=Relation to local community, 8=School environment

Instruments

Principal Self-Efficacy

Principal self-efficacy was measured by the multidimensional 22-item NPSES (see Appendix C for all items). The scale is constituted by eight dimensions with different

numbers of items on each subscale. Examples of items and Cronbach's alpha of the scales are presented in Table 2.

Table 2: Examples of items and Cronbach's alphas for the NPSES

Dimension	Items	Alpha	Example
Instructional leadership	2	.71	How certain are you that you can initiate, plan and carry out instructional development?
Economic management	2	.88	How certain are you that you can keep track of the school's finances?
Municipal authority	2	.52	How certain are you that you can collaborate with the municipal authority about future directions for the school?
Parental relations	2	.82	How certain are you that you can develop a good cooperation between school and home?
Local community	3	.84	How certain are you that you can maintain contact and cooperate with local businesses?
Administrative management	4	.82	How certain are you that you can follow up and implement all decisions taken?
Teacher support	2	.78	How certain are you that you can attend to and support teachers who are struggling with strain or exhaustion?
School environment	5	.89	How certain are you that you can develop a school in which all teachers experience well-being?

Note: Responses were given on a scale ranging from "Not certain at all" (1) to "Absolutely certain" (7).

The dimension concerning the relationship with municipal authority was retained on both statistical and theoretical bases, despite its low alpha value. The correlation between the two items was .35 ($p < .01$), and removing the dimension or one of the items did not contribute to a better fit using CFA. The theoretical argument is based on the importance of this relationship as noted in the interviews and the emphasis of this relationship in governance documents.

Work Engagement

The principals work engagement was measured by a previously translated Norwegian version of the UWES (Schaufeli & Bakker, 2004). The version consists of both the full and

short versions, and this study took advantage of the short one. The short version is also constituted by the three dimensions (vigor, dedication, and absorption). Examples of items and Cronbach's alpha of the scales are presented in Table 3.

Table 3: Examples of items and Cronbach's alphas for the UWES

Dimension	Items	Alpha	Example
Vigor	3	.90	At work, I feel like I'm bursting with energy.
Dedication	3	.86	I am enthusiastic about my job.
Absorption	3	.78	I am immersed in my work.

Note: Responses were given on a scale ranging from "Never" (1) to "Daily" (7).

Results

The factor structure of the NPSES was explored by testing three theoretical models by means of first- and second-order confirmatory factor analyses (see *Paper 1* for illustrations of the models). Model 1 consisted of one primary factor with loadings on all 22 observed items. This model was tested to ascertain whether principals' self-efficacy could be treated as a one-dimensional construct. Model 2 defined eight correlated primary factors corresponding to the eight theoretical dimensions. Model 3 defined eight primary factors and one second-order factor underlying the primary factors. Model 1 did not have acceptable fit to the data. However, Model 2 and 3 had good fit to the data (see *Paper 1* for fit indices and Appendix D and E for factor loadings in Model 2 and 3).

Since principals' work engagement was measured by a translated version of the UWES, initial analyses consisted of exploratory factor analyses (EFA) to investigate whether the three predicted dimensions would actually appear. The results from EFA indicated that work engagement in this case consisted of only two factors based on eigenvalues greater than 1 (see Appendix F for the rotated factor solution). Thus, further analysis became necessary, and the procedure chosen was a confirmatory factor analysis that took the result from EFA into consideration.

Three models of the UWES were tested. Model 1 defined work engagement in terms of three correlated primary factors, which are in accordance with theory and previous research. Model 2 defined work engagement as a single first-order factor with loadings on the nine observed items. Model 3 defined work engagement as a first-order factor consisting of seven items, in which the two items that constituted Factor 2 on EFA were excluded. Models 1 and 2 did not fit the data but Model 3 indicated a good fit (see *Paper 1* for fit indices).

Results from the analyses of the structural models revealed that both models had an acceptable fit to data (see *Paper 1* for fit indices). The results showed that principal self-efficacy was positively related to work engagement. However, the first-order model revealed that only two of the eight dimensions were significantly related to work engagement, namely instructional leadership and administrative management (see *Paper 1* Table 2 for details). Because such a result may be due to multicollinearity between the latent dimensions of self-efficacy, separate SEM analyses of the relation between each of the eight dimensions of self-efficacy and work engagement were conducted. All regression weights predicted work engagement significantly (see *Paper 1* Table 3 for details). In the second-order model of the NPSES principal self-efficacy predicted work engagement with a standardized regression weight of $\beta = .48$ $p < .001$ explaining 23% of the variance of work engagement.

MAIN STUDY

The pilot study revealed that the instrument for measuring principals' self-efficacy had a satisfactory factor structure. Moreover, the NPSES was validated through an inspection of its relation with work engagement. The purpose of the main study was to further validate the NPSES and employ the instrument to investigate relations between principals' self-efficacy and burnout, job satisfaction, perceived job autonomy, motivation to quit, and contextual constraints.

Participants and Procedure

Participants were principals of public and private elementary schools and middle schools (1^{st} - 10^{th} grade). All principals of such schools in Norway were invited to participate. This amounts to approximately 2900 schools. 1818 principals responded to the survey. This amounts to a response rate of approximately 63% which may be considered as satisfying with respect to selectivity (Babbie, 2004; Gall, Gall, & Borg, 2007). Considering sample size non-responses are assumed to be random. Data were collected using an electronic questionnaire. Information about the study and an invitation to participate was first distributed by mail to each of the respondents. Two weeks later, each respondent received a personal link to the survey which was sent to their personal email.

The sample consisted of 47.1% males and 52.9% females. The age of the principals ranged from 29 to 70 years old. The mean age was 52 years. The average teaching experience before becoming a principal was 13.5 years and the average number of years of managing experience was 11.5. The school size varied from 4 to 1300 pupils with an average of 215.

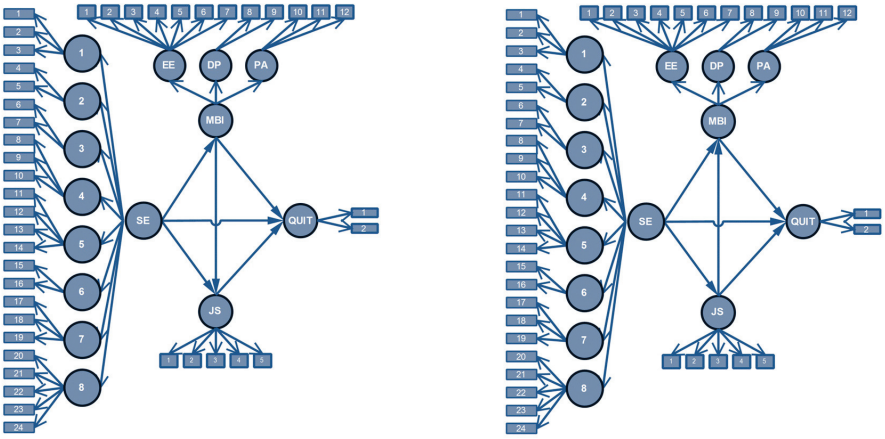
Paper 2

Objectives

Paper 2 is entitled: *Principal self-efficacy: Relations with burnout, job satisfaction and motivation to quit*. The purpose of this study was to explore relations between principals' self-efficacy, burnout, job satisfaction, and principals' motivation to quit.

Principal self-efficacy was measured by the NPSES. Burnout was measured by a modified version of the Maslach Burnout Inventory (MBI). Job satisfaction and motivation to quit was measured by two scales developed for the purpose of this study, respectively. Two structural equation models were tested which specified principal self-efficacy as an exogenous variable and burnout, job satisfaction, and motivation to quit as endogenous variables. Two different models were hypothesized because of an uncertainty whether burnout precedes or follows job satisfaction. The theoretical models are presented in Figure 3.

Figure 3: Two theoretical models of the relations between the NPSES, burnout, job satisfaction and motivation to quit.



1=Economic management, 2=Instructional leadership, 3=Parental relations, 4=Municipal authority, 5=Administrative management, 6=Teacher support, 7=Relation to local community, 8=School environment

Instruments

Principal Self-Efficacy

Principal self-efficacy was measured by the NPSES (see pp. 46-47). The instrument originally consisted of 22 items (see *Paper 1* for details) but for this study two additional items were added to increase the reliability and validity in two of the dimensions. The items were placed in the subscales of *relation to municipal authority* and *economic management* respectively. Number of items and Cronbach's alpha of the scales are presented in Table 4.

Table 4: Number of items and Cronbach's alphas for the revised NPSES

Dimension	Items	Alpha
Instructional leadership	2	.81
Economic management	3	.91
Municipal authority	3	.74
Parental relations	2	.86
Local community	3	.87
Administrative management	4	.78
Teacher support	2	.77
School environment	5	.86

Note: N = 1818

Burnout

Burnout was measured by means of a modified version of the MBI (Maslach, et al., 1996). This study used a previously translated Norwegian version of the MBI for measuring teacher burnout (see Skaalvik & Skaalvik, 2007) but some words and expressions were modified to make the scale applicable for principals (note that due to copyright quoting of items is prohibited). Participants rated statements indicating that their work makes them feel emotionally drained or exhausted (emotional exhaustion), the feeling of being more insensitive with respect to one's employees (depersonalization), and the experience of being useful and contributing positively in relation to their colleagues (personal accomplishment). Responses were given on a 7-point scale ranging from "Never" (1) to "Daily" (7). Cronbach's alphas for emotional exhaustion, depersonalization, and personal accomplishment were .91, .81, and .79 respectively (see *Paper 2* Appendix A for details regarding the MBI).

Job Satisfaction

Principals' job satisfaction was measured by a 5-item scale developed for the purpose of this study. The measure focused on the principals' global feelings towards their work. The principals were asked to rate statements indicating their level of job satisfaction. The statements were: "I get inspired by my job", "I really enjoy being a principal", "As principal, I am in my element", "I like to be the head of school", and "When I get up in the morning I look forward to going to work." Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for job satisfaction was .91.

Motivation to Quit

Motivation to quit as school principal was measured by means of two statements. The statements were: "If I had the opportunity to change my profession today, I would have done it" and "I would like to work as something else than a principal". Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for the two items measuring principals' motivation to quit was .84.

Results

Results from the analyses of the structural models revealed that both models had an acceptable fit to data (see *Paper 2* for fit indices). The result of the analysis of Model 1 is in accordance with previous findings of a strong relation between teacher self-efficacy and burnout (e.g. Skaalvik & Skaalvik, 2007) and demonstrates that this relation is strong also for school principals. Supporting previous findings (Skaalvik & Skaalvik, 2010), there were also a strong relation between burnout and job satisfaction. Based on previous research (e.g. Bandura, 1997; Caprara, Barbaranelli, Steca, & Malone, 2006; Skaalvik & Skaalvik, 2007) a positive relation between self-efficacy and job satisfaction was expected but the analyses revealed a small and non-significant regression weight. This path was removed from the model. However, there was a relatively strong positive correlation between self-efficacy and

job satisfaction as well as a strong positive indirect relation between these constructs. Furthermore, motivation to leave the position as principal was directly related to all other constructs in the model. Burnout was the strongest predictor of motivation to leave.

The analysis of Model 2 revealed similar goodness of fit indices as those found in Model 1 (see *Paper 2* for fit indices). In this model job satisfaction predicted burnout. This model also showed a strong relation between the two constructs. Furthermore in this model, self-efficacy was directly and relatively strongly related to job satisfaction. Self-efficacy was both directly and indirectly related to burnout. Finally, Model 2 revealed, as did Model 1, that motivation to leave the position as principal was directly related to all other constructs in the model.

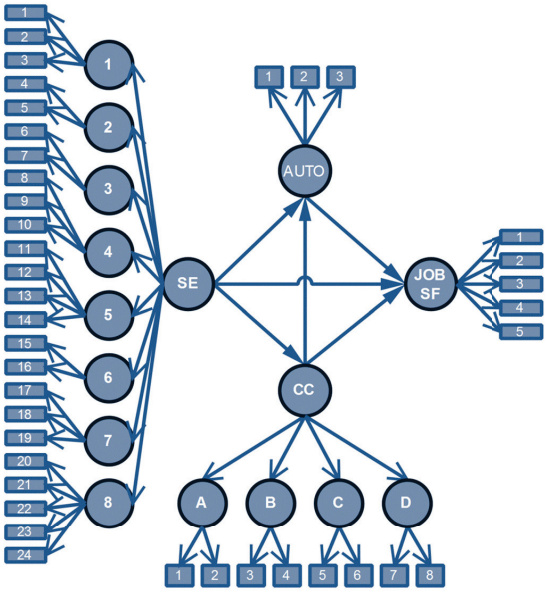
Paper 3

Objectives

Paper 3 is entitled: *Principals self-efficacy: Relations with job autonomy, job satisfaction and contextual constraints.* The purpose of this study was to explore relations between principals' self-efficacy, perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy.

Principal self-efficacy was measured by the NPSES. Perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy was measured by three scales developed for the purpose of this study, respectively. By means of structural equation modeling a theoretical model was tested to investigate how principals' self-efficacy predicts these constructs. The model defined principal self-efficacy as the exogenous variable and perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy as endogenous (see *Paper 3* for details). The theoretical model is presented in Figure 4.

Figure 4: A theoretical model of the relations between the NPSES, perceived job autonomy, job satisfaction, and contextual constraints.



1=Economic management, 2=Instructional leadership, 3=Parental relations, 4=Municipal authority, 5=Administrative management, 6=Teacher support, 7=Relation to local community, 8=School environment

A=Financial and administrative constraints, B=Employee participation, C=Municipal authority, D=National evaluation programs

Instruments

Principal Self-Efficacy and Job Satisfaction

Principal self-efficacy was measured by the NPSES (see pp. 46-47 and p. 53). Job satisfaction was measured by the scale developed for the purpose of this study (see p. 54).

Job Autonomy

Perceived job autonomy was measured by a 3-item scale developed for the purpose of this study. In line with Humphrey et al. (2007), the measure was designed to capture the principals' experience of freedom, independence, and discretion to schedule work. The principals were asked to rate statements indicating their levels of perceived autonomy. The statements were: "At work, I am free to prioritize what I think is important", "In my position,

I have freedom to work on what interests me", and "I feel that I have freedom to prioritize how to spend my time". Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for principals' perceived job autonomy was .85.

Contextual Constraints

Perceived contextual constraints to autonomy were comprised of financial and administrative constraints, employee participation, municipal authority, and national evaluation programs. These four areas of contextual constraints were identified through the qualitative interviews (see pp. 39-42). The contextual constraints were measured by an 8-item scale developed for the purpose of this study and the items were distributed equally on the four dimensions. The principals were asked to rate to what extent they thought these contextual elements restrict their latitude in their exercise of school leadership. Descriptions of the scales and Cronbach's alpha for the dimensions are presented in Table 5.

Table 5: Examples of items and Cronbach's alphas for the contextual constraints

Dimension	Alpha	Description
Financial and administrative constraints	.65	Concerns whether the principals experience that finances and lack of administrative resources restricts their latitude
Employee participation	.71	Focuses on the perceived restrictions that may arise from codetermination and trade unions.
Municipal authority	.59	Concerns whether the principals experience that the municipal authority and their contract of employment are perceived as restricting.
National evaluation programs	.88	Concerns whether the principals experience that the national evaluation programs restrict latitude

Note: Responses were given on a scale ranging from "Not at all" (1) to "Absolutely" (6).

Despite the low alpha value for two of the dimensions, they were retained on statistical bases. Both a first- and second-order confirmatory factor analysis supported the hypothesized model. In the present study the second-order model was of primary interest to

explore relations between a general experience of constraints and the other concepts in the study.

Results

Results from the structural analysis revealed that the model had an acceptable fit to data (see *Paper 3* for fit indices). The result of the analysis is in accordance with previous findings of a positive relation between self-efficacy and perceived job autonomy, and demonstrates that this relation is positive for principals as well (e.g. Bandura, 1997; van Mierlo, et al., 2006; Wang & Netemeyer, 2002). The results also support previous research (e.g. Judge, et al., 2001; Klassen & Chiu, 2010) revealing that both self-efficacy and perceived job autonomy is strongly related to job satisfaction. The contextual constraints to autonomy was negatively related to both perceived job autonomy and self-efficacy, but not directly related to job satisfaction. However, there was a moderate negative correlation (see *Paper 3* Table 1 for details) between contextual constraints to autonomy and job satisfaction, as well as a moderate negative indirect relation between the constructs. The indirect relation was mediated through perceived job autonomy.

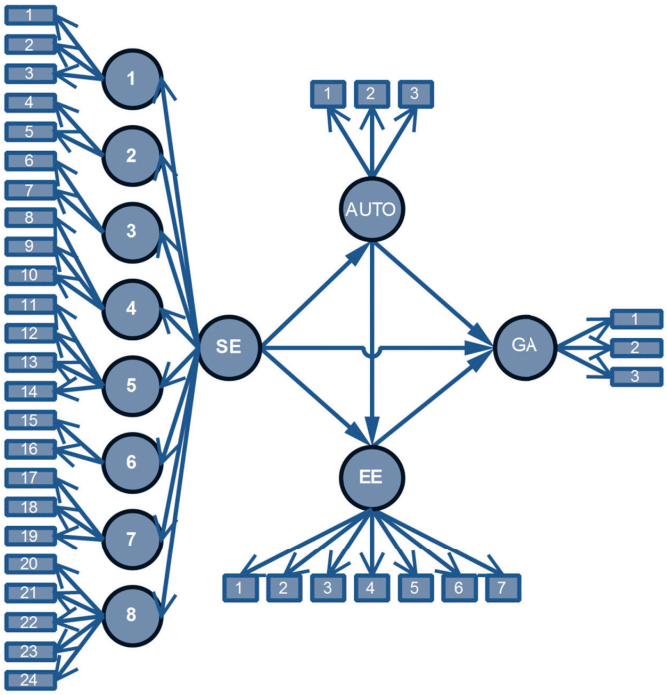
Paper 4

Objectives

Paper 4 is entitled: *Teacher and principal self-efficacy: Relations with autonomy and emotional exhaustion.* The purpose of this study was to investigate relations between self-efficacy, perceived autonomy, and emotional exhaustion among Norwegian school teachers and school principals. Separate studies of teachers and principals were conducted. The study of teachers also included perceived support from the school principal and job satisfaction whereas the study of principals included the degree to which teachers were given autonomy. The results from the study of principals are presented here (see *Paper 4* for details on both studies).

Principal self-efficacy was measured by the NPSES. Emotional exhaustion was measured by a short 7-item modified version of the emotional exhaustion dimension of the Maslach Burnout Inventory (MBI). Perceived autonomy and autonomy provided to teachers was measured by two scales developed for the purpose of this study, respectively. By means of structural equation modeling a theoretical model was tested which specified principal self-efficacy as an exogenous variable and emotional exhaustion, perceived autonomy, and autonomy provided to teachers as endogenous variables. The theoretical model is presented in Figure 5.

Figure 5: A theoretical model of the relations between the NPSES, emotional exhaustion, perceived autonomy and autonomy provided to teachers.



1=Economic management, 2=Instructional leadership, 3=Parental relations, 4=Municipal authority, 5=Administrative management, 6=Teacher support, 7=Relation to local community, 8=School

Instruments

Principal Self-Efficacy and Perceived Job Autonomy

Principal self-efficacy was measured by the NPSES (see pp. 46-47 and p. 53). Perceived job autonomy was measured by the scale developed for the purpose of this study (see pp. 56-57).

Emotional Exhaustion

Principals' emotional exhaustion was measured by a short 7-item modified version of the emotional exhaustion dimension of the MBI. The items were drawn from a Norwegian version of the MBI and the scale has been tested in previous studies (see *Paper 2* Appendix A for details regarding the MBI). The principals rated statements indicating that their work makes them feel emotionally drained or exhausted. Responses were given on a 7-point scale ranging from "Never" (1) to "Daily" (7). Cronbach's alpha for emotional exhaustion was .91.

Autonomy Provided to Teachers

The extent to which principals provide autonomy to their teachers was measured by use of a three-item scale developed for the purposes of this study. The items were: "At this school, teachers have much individual freedom in relation to the choice of instructional methods", "Teachers at this school are free in relation to the emphasis of content in the subjects they teach in", and "The teachers at this school have a great influence on their work." The principals were asked to rate statements on a six-point scale ranging from "Not at all" (1) to "Absolutely" (6), and the Cronbach's alpha for the autonomy provided to teachers was .61. Despite the low alpha value, the scale was retained on a statistical basis. The correlation between the items varied from .342 to .422 ($p < .01$), and initial analyses using CFA revealed that removing one of the items or the entire scale did not contribute to a better fit.

Results

An initial analysis revealed that all regression weights between the latent constructs were significant ($p < .001$) with the exception of one. The non-significant regression weight between principal self-efficacy and autonomy provided to the teachers was removed in the final model (see *Paper 4* for details). The final model had an acceptable fit to the data (see *Paper 4* for fit indices). The results revealed that self-efficacy was positively related to perceived job autonomy and negatively related to emotional exhaustion. Additionally, the analyses demonstrated that principal self-efficacy was indirectly related to the degree of autonomy provided to the teachers.

Demographic Variables

The papers that constitute the present thesis do not explore possible differences in the proposed structural models between groups (i.e. whether path coefficients in a model are equal or not). However, this could be an interesting subject of investigation since the significance of self-efficacy, and thus the strength of the relation to the other concepts, may vary for different groups. According to Bandura (1997), efficacy beliefs are affected by personal, social, and situational factors. Gender is one of the most influential of these factors (Bandura, 1997). Different cultures have expectations regarding the appropriate behaviors, personal qualities, and social roles for males and females, and such role expectations may contribute to gender differences in leadership self-efficacy and how it relates to other concepts (McCormick, Tanguma, & Lopex-Forment, 2002). Moreover, the most influential and efficient source of self-efficacy is past performance accomplishments. This indicates that previous experiences may influence the significance of efficacy beliefs. The impact of gender and leadership experience was therefore analyzed for each model in the main study (see *Paper 2, 3, and 4* for the models). However, because a thorough investigation of demographic

variables is beyond the scope of the present thesis, the findings are only shortly commented in the following subsections and not discussed.

Multiple Group Analysis

The structural models (see *Paper 2, 3, and 4* for the models) were analyzed by means of multiple group analysis. Such analyses allows the testing of whether groups meet the assumption that they are equal by examining whether different sets of path coefficients are invariant (for more extensive reading, see Arbuckle, 2009). In the present study the testing concerned whether the structural weights in the models were equal for different groups. Differences are identified in the *model comparison statistics* provided by AMOS 19. A significant chi-square value indicates that imposing restrictions of equal structural loadings across groups contributes to a statistically significant worsening of overall model fit (Arbuckle, 2009).

The Variables

Two demographic variables were employed to explore possible differences between groups. These were gender and years of leadership experience. The latter was transformed into four categories based on the quartiles distribution on the continuous variable. A description of the groups and number of respondents are presented in Table 6.

Table 6: Description of the demographic variables

Variable	N
Gender	
Male	855
Female	960
Year of leadership experience	
0-5	488
6-11	473
12-16	412
16-40	444

Results

The model comparison statistics revealed that imposing restrictions of equal structural weights across the four groups of years of experience did not result in a statically worsening of overall model fit (i.e. there were no differences between the structural models when comparing groups based on years of experience). However, there were small differences between the genders. An inspection of the structural weights in each structural model (see *Paper 2, 3, and 4* for the models) revealed that female principals' self-efficacy, compared to males, was weaker associated with job satisfaction, motivation to quit, and contextual constraints but stronger associated with perceived job autonomy and burnout. This is illustrated in Table 7.

Table 7: Comparison of standardized structural weights between the genders

Variable	Males (structural weights)	Females (structural weights)	Difference
Self-efficacy			
Burnout	-.286	-.344	.058
Exhaustion	-.284	-.291	.007
Job satisfaction	.609	.577	.032
Perceived job autonomy	.292	.364	.072
Motivation to quit	.311	.250	.061
Contextual constraints	-.436	-.362	.074

Note. The results are based on the EM imputed dataset.

Taken together, the analyses indicate that the strength of the relation between principal self-efficacy and burnout, job satisfaction, perceived job autonomy, motivation to quit, and contextual constraints is different for males and females. Thus, self-efficacy may have varying impact on different concepts depending on gender although the pattern is the same. However, in the present study the difference between the structural weights for males and females are small and the goodness of fit indices are virtually identical. One may therefore speculate whether these findings have any practical significance. Nevertheless, an exploration of the significance of demographic variables (e.g. school size, location, age, etc.) in relation to

principal self-efficacy and the other concepts in the study is an important subject and will be examined more thorough in future analyses of the present data.

DISCUSSION

In educational research, self-efficacy has been shown to predict cognitions as well as emotions and behavior. For instance, self-efficacy has been demonstrated to be positively related to students' goals and aspirations, choices, effort, persistence in the face of difficulties, and academic performance (Maddux & Gosselin, 2003; Skaalvik & Bong, 2003). Studies of teachers have also shown that teacher self-efficacy predicts teachers' goals, motivation, job satisfaction, and well-being, as well as students' motivation and achievement (Ashton & Webb, 1986; Hoy & Davis, 2005; Muijs & Reynolds, 2002; Skaalvik & Skaalvik, 2007, 2010). Research on leadership efficacy has revealed that self-efficacy directly promotes effective leader engagement, flexibility, and adaptability (Hannah & Luthans, 2008). However, less attention has been given to principal self-efficacy and there is also a lack of valid instruments measuring principal self-efficacy tailored to a variety of their functions and responsibilities.

Development, Utility and Validation of the NPSES

One purpose of the present research was therefore to develop and test the factor structure of a multidimensional and hierarchical scale for measuring principal self-efficacy. Based on interviews of principals and previous research (e.g. Byrkjeflot, 1997; Møller, 1995, 1996; Ottesen & Møller, 2011) eight areas of principals' functioning and responsibilities were identified (see pp. 39-43). The Norwegian Principal Self-Efficacy Scale (NPSES) was then developed to measure the eight different dimensions of principal self-efficacy.

First- and Second-Order Factor

The analyses (see pp. 48-49 and *Paper 1 and 2* for details) clearly support the conceptualization of principal self-efficacy as a hierarchical and multidimensional construct. The fact that eight separate but correlated dimensions of principal self-efficacy were identified in the first-order model has implications for both educational practice and research.

According to Bandura (1997), self-efficacy beliefs are task and context specific, but can be generalized across a range of tasks and situations. He states that:

> Mastery experiences that provide striking testimony to one's capacity to effect personal changes can also produce a transformational restructuring of efficacy beliefs that is manifested across diverse realms of functioning. Such personal triumphs serve as transforming experiences. What generalizes is the belief that one can mobilize whatever effort it takes to succeed in different undertakings (Bandura, 1997, p. 53).

This may indicate that principals with high self-efficacy in all of the domains may perceive themselves as more adaptable to meet a diverse array of leadership challenges. Given that self-efficacy predicts cognitions as well as emotions and behavior, e.g. principals' prioritizing, choices, and effort, the analyses indicate that it is important that principals establish agency and strong efficacy beliefs in a number of areas of functioning. Consequently, one cannot adequately measure principal self-efficacy without taking into consideration the variety of responsibilities given to school principals.

The results also supported a strong second-order factor underlying the eight dimensions (see *Paper 1 and 2* for details). This indicates that in addition to self-efficacy beliefs for specific areas of functioning, school principals also have a more general domain-specific experience of self-efficacy. These findings make the instrument particularly useful for research purposes. The NPSES may be used to study the relations between a second-order self-efficacy factor and other constructs, though it may also be used to study the impact of specific dimensions of self-efficacy for different areas of principals' functioning. For instance, an important question for future research is how principal attrition is related to their general domain-specific self-efficacy as well as to specific aspects of principal self-efficacy.

Validation of the NPSES

The analysis of a first-order model of the NPSES confirmed (see *Paper 1* for details) a positive relation between principals' self-efficacy and work engagement. However, the analysis revealed that only two of the eight dimensions of the NPSES were significantly related to work engagement, namely instructional leadership and administrative management (see *Paper 1* Table 2 for details). The result may be due to multicollinearity between the latent dimensions of self-efficacy. Separate SEM analyses of the relation between each of the eight dimensions of self-efficacy and work engagement was therefore conducted. The result revealed that all dimensions of principals' self-efficacy significantly predicted work engagement.

As for the first-order model, the analysis of the second-order model also confirmed a positive relation between principals' self-efficacy and work engagement (see *Paper 1* for details). In this model, self-efficacy predicted work engagement with a standardized estimate of .48. The analyses of both the first- and second-order models are in accordance with previous findings of a moderate to strong relation between self-efficacy and work engagement (e.g. Bakker, et al., 2006; Breso, et al., 2008; Halbesleben, 2010; Prieto, 2009; Sweetman & Luthans, 2010), and demonstrates that this relation is also strong for school principals.

Associations of Principals Self-Efficacy

Another purpose of the present research was to investigate how self-efficacy predicts burnout, job satisfaction, perceived job autonomy, motivation to quit, and perceived contextual constraints to autonomy. The following subsections provide a discussion of the findings from the present research. Each subsection first discusses the relation between principal self-efficacy and the specific concept(s), before other relations and mediations are reviewed. At the end of this chapter overall conclusions, practical implications, and limitations are provided.

Work Engagement and Job Satisfaction

In line with previous studies (e.g. Bakker, et al., 2006), the analyses revealed a positive and strong relation between principals' self-efficacy and both work engagement and job satisfaction (see *Paper 1, 2, and 3* for details). According to Bandura (1997), high self-efficacy promotes positive perceptions of one's own capabilities. A possible interpretation of these relations may be that principals who believe in their abilities and competence to perform a job will both be more motivated and satisfied. Such principals perceive themselves as more capable to cope successfully with their work. Such an assumption is supported by social cognitive theory which underscores that high self-efficacy contributes to reduce stress and increase engagement (Bandura, 1977, 1986, 1997). Interpreted in general terms these results indicate that self-efficacy contribute to the principals work-related motivation, commitment, and well-being.

Such characteristics may be especially useful in professions that deal with a variety of tasks and relationships. Principals have to relate to a number of areas of functioning and variety of people in their work environment such as teachers and students. Supported by previous research (e.g. Chemers, et al., 2000), one may speculate that creating and sustaining a work environment that promotes work engagement and job satisfaction may have a positive impact for the exercising of not only the principal and teacher professions, but also for student outcomes.

Burnout

As expected, the analyses revealed a negative relation between principals' self-efficacy and burnout / emotional exhaustion (see *Paper 2 and 4* for details). As pointed out by Bandura (1997), individuals with a low self-efficacy view many aspects of their environment as being fraught with danger, dwell in their coping deficiencies and magnify the severity of possible threats. The results therefore indicate that self-efficacy is important for principals'

well-being. Principals with low levels of self-efficacy may experience more uncertainty and doubt that they will be able to conduct important tasks to a greater extent than principals with higher levels of self-efficacy. The combination of high responsibility and a repeated feeling of uncertainty and doubt is a stressful and worrying situation that may lead to emotional exhaustion and, in the long run, to burnout.

The analyses also revealed that the experience of emotional exhaustion, the cynical attitude, and the feeling of reduced accomplishment may, over time, be followed by reduced job satisfaction (see *Paper 2* Figure 1 for details). However, the causal direction between burnout and job satisfaction may be unclear. An alternative interpretation of this relation (see *Paper 2* Figure 2 for details) may be that the feeling of uncertainty detracts from job satisfaction. The persistent feeling of job dissatisfaction may, in addition to low self-efficacy, constitute a very stressful working situation, leading to burnout. Taken together, there may be a reciprocal relation between burnout and job satisfaction. The analyses indicate a strong relation between the two concepts but leave the question about the causal direction open.

Motivation to Quit

The indirect relation between principals' self-efficacy and motivation to quit the job were large and negative (see *Paper 2* Tables 5 and 6 for details). These indirect relations were mediated through burnout and job satisfaction. Similar relations are found in other studies (e.g. Chen & Scannapieco, 2010) and may indicate that self-efficacy has a preventive effect on the motivation to quit the job. In contrast, an unexpected finding was a moderate but positive direct relation between principals' self-efficacy and motivation to quit (see *Paper 2* Tables 3 and 4 for details).

A possible explanation of the positive direct relation may be that principals with high self-efficacy perceive changing the line of work as an opportunity and as a challenge to a greater extent than principals with lower self-efficacy. In contrast, principals with lower levels

of self-efficacy may more uncertain that they will manage a new line of work and perceive this as more risky. As pointed out by Bandura (1997) persons with low levels of self-efficacy tend to dwell more with impediments and their own perceived inadequacy. High self-efficacy may lead to higher job satisfaction and lower levels of burnout which again increases the motivation to continue working as a principal. At the same time high levels of self-efficacy may strengthen the belief that one may succeed in other lines of work and therefore increase the motivation to leave the position. These contradictory psychological processes may also explain the relatively moderate correlation (see *Paper 2* Table 2 for details) between self-efficacy and motivation to quit as principal. Explained in causal terms the two opposite effects tends to equal each other out, even if the negative relation was the strongest in this study.

Principals' motivation to quit the job was directly related not only to self-efficacy but also to job satisfaction and burnout (see *Paper 2* Tables 3 and 4 for details). An interpretation may be that low self-efficacy, as well as low job satisfaction and high levels of burnout, indicate stressful working situations which, over time, lead to motivation to leave the position. Burnout was the strongest predictor of principals' motivation to quit the job.

Moreover, one would expect that job satisfaction would increase engagement and therefore function as a barrier against motivation to quit. In accordance with such an expectation the analyses revealed both a negative direct and indirect relation between these constructs (see *Paper 2* for details). Interpreted in causal terms this result shows that job satisfaction is very important for principals' motivation to stay in the position, but that the impact of job satisfaction partly may be mediated through other variables such as burnout.

Job Autonomy

The analyses revealed a positive and moderate relation between principals' self-efficacy and perceived job autonomy (see *Paper 3 and 4* for details). These results are in accordance with previous findings and demonstrate that this relation is positive for principals

as well (e.g. Bandura, 1997; van Mierlo, et al., 2006; Wang & Netemeyer, 2002). This indicates that principals' self-efficacy contributes to the principals' perceived job autonomy. Social cognitive theory (Bandura, 1997, 2006c) proposes that self-efficacy influences how environmental opportunities and impediments are perceived. Efficacious principals may therefore use ingenuity and perseverance to plan means of exercising control and be capable of taking the steps needed to gain more autonomy. Principals with high mastery expectations may focus more on challenges and possibilities, while principals with lower mastery expectations focus more on impediments and obstacles. Hence, by focusing on possibilities rather than limitations, efficacious principals may perceive greater latitude, thereby increasing the feeling of having job autonomy within formal boundaries.

Additionally, the results revealed that principals' self-efficacy and perceived job autonomy were positively related to job satisfaction (see *Paper 3* Figure 2 for details). Previous studies have shown that employees who experience a large degree of control and latitude in their jobs report higher levels of job satisfaction and commitment to their work (e.g. Chen & Scannapieco, 2010; Rooney, et al., 2009). This indicates that principals who believe in their abilities and competence to perform a job and experience a great deal of latitude in their work will be more satisfied. Such principals may perceive that they possess control over their environment and are therefore more capable to cope successfully with their work.

The analyses also revealed that job autonomy is predictive of lower levels of emotional exhaustion (see *Paper 4* Figure 4 for details). A possible explanation for this negative relation could be that principals with a strong feeling of autonomy use less time and energy to question what is expected of them and worrying about whether they will be able to meet these expectations. A related explanation may be that principals who feel that they lack autonomy may also feel that they are forced to work towards goals and use means and

methods that are not congruent with their own values. The feeling that one lacks autonomy may therefore work as a barrier against acting according to one's own goals and values. Such a lack of value consonance may result in stress, worry, and emotional exhaustion.

Contextual Constraints

The results showed that principals' self-efficacy was negatively related to perceived contextual constraints to autonomy (see *Paper 3* Figure 2 for details). According to Bandura (1997), high self-efficacy is associated with overcoming environmental obstacles. Efficacious principals may be more likely to deal with contextual constraints because they do not perceive them as challenging or threatening. Supported by Wood and Bandura (1989), this may indicate that principals with high self-efficacy may find ways of exercising control in environments that contain limited opportunities and many constraints. Conversely, principals with low levels of self-efficacy may experience constraint as threatening and thus conduct limited change even in environments that provide potential opportunities.

The findings also revealed that the contextual constraints were negatively related to perceived job autonomy (see *Paper 3* Figure 2 for details). Principals who largely perceive the contextual constraints as restricting to their latitude also experience the constraints as an obstacle for their autonomy. As proposed by self-determination theory (Gagne & Deci, 2005), they may experience the contextual constraints as being pressured by external demands, decreasing their total latitude.

Theoretically, one might assume that the contextual constraints would decrease job satisfaction because contextual constraints may be experienced as restrictions or pressures in the principals' work environment. However, the analyses unexpectedly revealed a non-significant direct relation between these concepts (see *Paper 3* Figure 2 for details). Still, the results showed a small negative indirect relation which was mediated through perceived job autonomy. A possible interpretation may be that the contextual constraints do not directly

affect the principals' job satisfaction because they do not perceive them as obstacles to their work-related well-being. On the other hand, when the constraints are experienced as threatening to job autonomy they have a negative impact on job satisfaction. This may indicate that self-efficacy and perceived job autonomy may serve as a buffer to hinder the negative experience of contextual constraints. Efficacious and autonomous principals may perceive the constraints to be less restricting for their latitude, which in turn prevents the contextual constraints to affect job satisfaction

Autonomy Provided to Teachers

Paper 4 explored relations between principals' self-efficacy, perceived job autonomy, and emotional exhaustion (see *Paper 4* for details). Additionally, the principals' perceived autonomy provided to teachers was included. The analyses revealed that self-efficacy was indirectly and positively related to the degree of autonomy principals allowed teachers to have (see *Paper 4* Table 4 for details). One indirect relation was mediated through the feeling of autonomy, with a possible explanation for this being that principals who feel that they have autonomy and are not extensively controlled by the municipal authority feel more secure and less threatened. Hence, their need to control teachers may be reduced.

The results also revealed a small negative indirect relation between self-efficacy and autonomy given to teachers (see *Paper 4* Table 4 for details). This relation was mediated through emotional exhaustion. Although the relation was weak, principals experiencing emotional exhaustion tended to allow more autonomy to the teachers. One possible interpretation for this is that emotional exhaustion is energy consuming and principals experiencing exhaustion do not have the energy to involve themselves in the educational processes at the school.

Conclusions

One purpose of the present research was to develop an instrument for capturing principals' self-efficacy. The results clearly support the conceptualization of principal self-efficacy as a hierarchical and multidimensional construct indicating that one cannot adequately measure self-efficacy without taking into consideration the variety of responsibilities given to school principals. This kind of conceptualization of leadership efficacy has in fact been previously called for by Hannah et al. (2008). In their review, they propose that leadership self-efficacy should be conceptualized as hierarchical in structure where leaders hold a certain super-ordinate level of generalized efficacy across their various task and requirements (Hannah, et al., 2008). Within this level, leaders also possess subordinate domains of self-efficacy in terms of their perceived capabilities to perform within more narrowly defined tasks and situations. These more domain-specific efficacies may be seen as contributing to or detracting from overall generalized efficacy (Hannah, et al., 2008). However, more research is needed to investigate how general efficacy beliefs and domain specific beliefs interact with one another. Hannah et al. (2008) states that "it has not been empirically determined whether generalized efficacy drives more specific forms of efficacy, or the more specific forms of efficacy drives the more general; or whether the effects are reciprocal in reinforcing each other" (p. 7). Despite that the present research does not explore this interaction; the research does indeed support a multidimensional and hierarchical conceptualization of leadership efficacy. The Norwegian Principal Self-Efficacy Scale contributes to such a measure and may improve research on both principal and leadership self-efficacy.

A second purpose of the present research was to examine relations between principals' self-efficacy and both work related psychological concepts and perceived contextual conditions. The findings confirm expectations that were derived from social cognitive theory and previous research indicating that perceived self-efficacy influences individual' cognitions

and emotions, and determines how environmental opportunities and impediments are perceived. The results reveal that principals' efficacy relates to both personal experiences and their interpretation of environmental conditions. Specifically, the present research reveals important consequences of principals' level of self-efficacy for work engagement, job satisfaction, burnout, and motivation to quit, concepts which according to previous research may have a substantial impact on employees functioning. Moreover, principals' with high self-efficacy are likely to experience more job autonomy under the same restrictions, compared to those with a weak sense of efficacy. In addition, they provide more autonomy to their teachers. Such principals also perceive State imposed constraints like evaluation systems and curricula as less constraining to their autonomy. Given the principals' responsibilities for both their teachers' work environment and students outcomes, they should therefore preferably perceive themselves as efficacious and autonomous in order to deal efficiently with different contextual constraints and work-related tasks. Coping successfully will in turn contribute positively to their job satisfaction and motivation to stay in the position.

The findings indicate the great importance of positive efficacy beliefs for principals functioning and performance. Taken together, the results strongly support the expectation that self-efficacy affects a variety of cognitive, affective, as well as behavioral responses. The overall findings demonstrate the utility of social cognitive theory for the study of motivation and performance in leadership domains, but also its practical significance. Wood and Bandura (1989) states that: "The value of psychological theory is judged not only by its explanatory and predictive power, but also by its operational power to improve human functioning" (p. 380). The demonstration that principals' self-efficacy is highly associated with critical psychological concepts and their perception of contextual conditions implies that enhancing efficacy beliefs of principals will improve their functioning and should therefore be an

important goal in education of school principals. Education and efficacy raising interventions that causes increased self-efficacy is likely to produce improved performance.

Practical Implications

According to Hannah et al. (2008), previous research regarding efficacy raising interventions for leaders is scarce. However, some empirical studies have been conducted. For instance, researchers have found that employees' efficacy beliefs are positively associated with encouragement by leaders (Mellor, Barclay, Bulger, & Kath, 2006). Moreover, during a series of interventions Hannah (2006) raised levels of generalized leader efficacy through mastery experiences, social persuasion, and guided reflection, that in turn predicted motivation to lead (Chan & Drasgow, 2001) and performance over a 34-week span (Hannah, 2006).

The social cognitive theory provides a general conceptual framework about how to equip individuals with the competencies, the self-regulatory capabilities, and the resilient sense of efficacy that will enable them to enhance both their well-being and their accomplishments (Bandura, 1997; Hannah et al. 2008). Thus, these techniques for building efficacy should also be useful for principals. These are based on the four sources of self-efficacy beliefs (mastery experiences, vicarious experience, verbal persuasion, and physiological and emotional reactions). As pointed out by Bandura (1997) the most influential and efficient source to the creation of efficacy beliefs are mastery experiences based on past performance accomplishments. Previous research has demonstrated that previous leadership experiences predict leaders' self-efficacy (McCormick, et al., 2002). Through guided mastery experiences principals may be provided with the instruction and coaching needed to succeed, which in turn may increase their self-efficacy beliefs (Bandura, 1997; McCormick, et al., 2002). However, according to Bandura (1997), success alone does not equal efficacy, but rather how the individual interprets the success (e.g. ability or effort).

Principals' self-efficacy may also be increased through vicarious experiences or modeling (e.g. observation of competent and relevant models successfully performing similar tasks). However, the amount of influence is based on the level of similarity between the model and the observer on characteristics that are relevant to the task (Bandura, 1997; McCormick, et al., 2002). Moreover, Bandura's (1997) recommendation for the impact of verbal persuasion is a third way that principals' self-efficacy may be increased. For instance, Mellor et al. (2006) demonstrated that verbal persuasion raised self-efficacy to take on leadership roles. Still, the impact of persuasive information is most effective when those who convey the efficacy information are viewed as competent and reliable (Bandura, 1997; Pajares, 2002a).

Finally, the fourth source to develop self-efficacy is physiological and emotional reactions (Bandura, 1997). Such responses are associated with prior success or failure and may send signals to people that affect their efficacy expectations in given situations (Bandura, 1997). According to Bandura (1994), it is how the individuals perceive, interpret, and process the physiological and emotional reactions that are crucial, not the intensity of them. Such reactions can function as energizers of behavior or be experienced as signs of vulnerability or stress, which in turn may be associated with a lack of confidence (Bandura, 1997; Hannah, et al., 2008). Self-awareness to interpret these physiological and emotional reactions as energizers should therefore increase principals' self-efficacy.

Enhancing principals' self-efficacy is an important objective for those responsible for improving the quality of leadership in schools. Taken together, the social cognitive theory provides a conceptual framework which may be operationalized to such a purpose. The methods suggested by Bandura to increase efficacy beliefs should be implemented in education of newly appointed principals. For instance, inexperienced principals could participate in mentoring programs developed to provide the necessary efficacy beliefs for

optimal functioning. A measure of principal self-efficacy change could be an applicable criterion for evaluating the success of such a leadership education.

Limitations and Future Research

The construct of principal self-efficacy will benefit from further research. The present study has initiated the development of a valid and reliable instrument to measure principal self-efficacy. However, the Norwegian Principal Self-Efficacy Scale should be tested in other cultures and future research should verify the factor structure of the instrument, but also examine whether other factors should be included. Moreover, the present research treated principal self-efficacy as the exogenous variable. Since the cross-sectional design precludes any definite conclusion about causality, causal relations between principals' self-efficacy and the other concepts in the study should be investigated by means of longitudinal studies. Also, the concepts used in this study do not operate in isolation from other psychological determinants that may affect principals' motivation and performance. Other constructs should be explored in relation to those included in this research.

The collected data is constituted by self-reporting measures and there is no measure of the extent to which these self-reports accurately reflects the variables under study. The line of research could further be developed by conducting studies that combine self-report data with data obtained in a more objective matter. For instance, by longitudinal studies that incorporates both quantitative and qualitative methods. Such studies should also link self-efficacy scores to a measure of principals' actual performance or effectiveness.

Researchers have given less attention to principals' self-efficacy, although the number of studies is increasing. The present research contributes to self-efficacy research and extends the literature regarding principal self-efficacy and its relation to other concepts. The study highlights the benefits of efficacy beliefs for adaptive functioning. Future research should continue to investigate the benefits of principals' efficacy beliefs and focus on both

antecedents to a robust sense of self-efficacy and outcomes related to efficacy beliefs. Additionally, future research should identify possible outcomes for schools, teachers and students.

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PAPER 1

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Principal self-efficacy and work engagement: assessing a Norwegian Principal Self-Efficacy Scale

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Abstract One purpose of the present study was to develop and test the factor structure of a multidimensional and hierarchical Norwegian Principal Self-Efficacy Scale (NPSES). Another purpose of the study was to investigate the relationship between principal self-efficacy and work engagement. Principal self-efficacy was measured by the 22-item NPSES. Work engagement was measured by a modified version of the Utrecht Work Engagement Scale (UWES). The participants in the study were 300 principals randomly drawn from the population of Norwegian principals. Data were collected by means of an electronic questionnaire. Both the NPSES and the UWES were investigated through confirmatory factor analyses (CFA) before two structural equation models were tested. Both models specified principal self-efficacy as an exogenous variable and work engagement as an endogenous variable. The data were analyzed by means of a SEM analysis for latent variables using the AMOS 18 program. Three different models of NPSES were tested. Both a first- and second-order CFA confirmed that principal self-efficacy constitutes eight dimensions. Furthermore, both structural models had an acceptable fit to data and revealed that principal self-efficacy was positively related to work engagement. The results of the study are discussed together with limitations and suggestions for further research.

Keywords Self-efficacy · Work engagement · Motivation · Educational leadership · SEM

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1 Principal self-efficacy and work engagement: assessing a Norwegian Principal Self-Efficacy Scale

Norwegian principals are responsible for all aspects of school management as well as future development. The exercise of these responsibilities requires the expectation to cope successfully (self-efficacy) in a number of different areas of functioning. Self-efficacy is grounded in social cognitive theory, emphasizing the evolution and exercise of human agency. The concept of human agency is built on the idea that people can exercise some influence over their life (Bandura 2006b). A vast number of studies have shown that self-efficacy influences people's performance, persistence and motivation when carrying out tasks (Bandura 1977, 1997, 2006b). Self-efficacy is defined as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances (Bandura 1977; Bandura 1986; Bandura 1997).

Within the field of educational research, self-efficacy has primarily been studied in four different areas: student self-efficacy (e.g Bandura 1993; Schunk and Meece 2005), teacher self-efficacy (e.g. Skaalvik and Skaalvik 2007), collective teacher efficacy (e.g. Bandura 1997; Goddard et al. 2000; Skaalvik and Skaalvik 2010) and more recently principal self-efficacy (e.g. Brama 2004; Sierman Smith 2008; Smith and Guarino 2006; Tschannen-Moran and Gareis 2004, 2005). Research on principal self-efficacy is scarce and researchers have conceptualized the concept differently or measured different aspects of it. Despite differences in measures of self-efficacy, the available studies indicate that principals' self-efficacy is associated with adaptive functioning. For example, efficacious principals tend to be more persistent in pursuing goals and are more adaptable to changes (Osterman and Sullivan 1996). According to Licklider and Niska (1993), principals' self-efficacy is related to the quality of supervision of teachers (Licklider and Niska 1993). Principals' level of self-efficacy also influences their effort, work persistence and resilience in the face of setbacks (Tschannen-Moran and Gareis 2004). Moreover, Dimmock and Hattie (1996) found efficacy as a valued element for principals in a school restructuring process (Dimmock and Hattie 1996), whereas Smith et al. (2006) concluded that the quality of teaching and students' learning is influenced by the principals' efficacy (Smith et al. 2006).

Previous studies of various occupations reveal that self-efficacy is positively related to work engagement (e.g. Halbesleben 2010; Sweetman and Luthans 2010) and have consistently shown that work engagement is positively associated with concepts such as job resources (e.g. support, feedback, autonomy), personal resources (e.g. self-efficacy, organizational-based self-esteem and optimism) and job performance (e.g. extra-role performance) (Bakker 2009; Xanthopoulou et al. 2007). In the present study, work engagement is defined as a positive, fulfilling, work-related state of mind characterized by vigor, dedication and absorption (Schaufeli et al. 2002). A literature search on principal self-efficacy and work engagement indicates that there are few studies which have focused on this specific relation among principals. Still, based on previous research of different occupations (e.g. Breso et al. 2008; Prieto 2009), it seems reasonable to expect that a similar relation may be found among principals.

The purpose of the present study was twofold. In contemporary research of principal self-efficacy, it may seem as if scientists lack a well-tested and proven instrument

for measuring this concept. There seems to be no common agreement on how the construct should be conceptualized and how it should be measured. The first purpose of the present study was therefore to develop and test the factor structure of a multidimensional and hierarchical Norwegian Principal Self-efficacy Scale (NPSES). The second purpose of the study was to investigate the relationship between principal self-efficacy and work engagement. Based on prior research, we expect to find a positive relation between the constructs.

1.1 Social cognitive theory

Social cognitive theory emphasizes the evolvement and exercise of human agency – an idea that people can exercise some influence over what they do (Bandura 1977; Bandura 1986; Bandura 1997, 2006a). The theory postulates that individuals are engaged in their own development and that people can affect their own actions. This theoretical perspective views people as self-organizing, proactive, self-reflective and self-regulated, rather than as reactive organisms shaped by their environment. To varying degrees, people possess the skills to control their own thought patterns, emotions and actions. What they think, believe and feel create guidelines for behavior (Bandura 1986). Social cognitive theory asserts that people's perception of reality, and thus behavior, is affected by their control and influence over their lives. Individuals are considered both products and producers of their environment and social surroundings. Human functioning is viewed as the product of a dynamic interplay of personal, behavioral and environmental influences, which is the foundation of Bandura's (1986) reciprocal determinism. The concept suggests that personal factors, behavior and environmental influences create interactions that result in a triadic reciprocality.

Self-efficacy is a key element of social cognitive theory. It is defined by Bandura (1986) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Self-efficacy beliefs influence the courses of action that people pursue, and is an important construct for understanding human behavior in various contexts (Bandura 1986; Bandura 1997). Self-efficacy is the individual's belief about what he or she can achieve in a given context, rather than a judgment of one's own abilities. The concept is both multidimensional and context-specific (Bong and Skaalvik 2003).

High self-efficacy promotes positive perceptions of one's own capabilities and provides information to carry out actions. Self-efficacy beliefs are of great importance for peoples' well-being in several areas. Individuals with positive efficacy beliefs tend to regard difficult tasks as challenges, whereas those who doubt their capabilities tend to consider difficult tasks as threats. Self-efficacy beliefs foster intrinsic motivation and the ability to demonstrate involvement in various activities (Bandura 1994, 1997). A characteristic of individuals with high self-efficacy may be that they set challenging goals for themselves and strive to achieve these by making and maintaining an effort. Failures are attributed to a lack of effort or knowledge, though the latter can be acquired. High self-efficacy reduces stress and decreases the likelihood of mental disorders (Bandura 1986; Bandura 1994, 1997). Individuals with low self-efficacy are generally characterized by doubts about their own abilities, and tend to withdraw from activities that are perceived as threatening or challenging. When they face difficulties

they focus on their lack of ability to master the activity, typically reduce the amount of effort expended and give up quickly (Bandura 1986; Bandura 1994, 1997; Pajares 1997, 2002).

The sense of self-efficacy the individual possesses influences decisions of behavior in which cognitive, motivational, affective and selective processes work to transform the individual's self-efficacy into action. Self-efficacy influences self-regulatory processes in which efficacy beliefs determine how environmental opportunities and impediments are perceived. In turn, these beliefs influence choices of action, how much effort is expended on an activity and how long people will persevere when confronted with obstacles. As previously mentioned, higher levels of self-efficacy produce greater effort and persistence. Individuals' self-efficacy beliefs also influence the experience of stress and anxiety when engaging in activities (Bandura 1997; Pajares 1997). There has been extensive research on self-efficacy that supports this theory, including research on academic, cognitive, health, clinical, athletic and organizational functioning in various contexts (Bandura 1997; Pajares 1997).

Research on self-efficacy in an educational context has received increasing attention, often in studies of academic motivation and self-regulation (Pajares 1997; Schunk et al. 2008). For example, self-efficacy researchers have investigated the link between efficacy beliefs and choices in college major and career. These findings provide insight into the career development of young adolescents and can be used to develop career intervention strategies (Brown and Lent 2005; Pajares 1997; Zimmerman 1995). In addition, student self-efficacy has been shown to be related to their motivation, academic performance and achievement (e.g. Schunk and Meece 2005; Zimmerman 1995). Research on individual and collective teacher self-efficacy has shown that a teacher's self-efficacy is related to their goals and aspirations, and also predicts student motivation and achievement (e.g. Ashton and Webb 1986; Hoy and Davis 2005; Muijs and Reynolds 2002; Skaalvik and Skaalvik 2007, 2010).

1.2 Principal self-efficacy

It appears that several levels of the educational system have been covered within self-efficacy research, although less attention has been given to investigating principal self-efficacy. We assume that self-efficacy is also vital to leaders' success because it determines their effort and persistence in relation to a specific task as well as to the aspirations and goals they set (Bandura 1997; Gist and Mitchell 1992). Moreover, according to Chemers et al. (2000), leaders' self-efficacy is important because it affects the attitudes and performance of their followers. Leaders' efficacy beliefs are also related to their followers' commitment to organizational tasks and have a positive effect on employee's engagement (Chemers et al. 2000). One may therefore assume that principals' self-efficacy is of great importance with respect to the overall managing of schools.

Principal self-efficacy may be defined as a kind of leadership self-efficacy which is associated with a certain level of confidence in one's own knowledge, skills and abilities in association with leading others (Hannah et al. 2008). In the present study, principal self-efficacy is defined as the principals' judgments of their capabilities to plan, organize and execute tasks and deal with their relationship to people and institutions

in their environment. Previous research on principals' self-efficacy has focused partly on the *structure* of the construct (e.g. Brama 2004) and partly on how it *relates* to other concepts (e.g. Imants and De Brabander 1996; Smith 2003; Tschannen-Moran and Gareis 2004, 2005). Some instruments try to measure principals' self-efficacy in many areas and situations that a principal might face during work, while other studies focus on a few but important aspects. Both approaches usually investigate the relation between principal self-efficacy and other concepts.

Brama (2004) tested a three-dimensional model to investigate the structure of principal self-efficacy. The model was comprised of organizational skills, human skills and technical skills. A reliability analysis and exploratory factor analysis did not statistically support this model. In a later study, data were analyzed by means of an exploratory and confirmatory factor analysis. These results supported a five-component construct of principal self-efficacy comprised of efficacy for general managing, efficacy for leadership, efficacy for human relations, efficacy for managing school relationships with the environment, and instructional efficacy. The author emphasized that the concept is culture-dependent and that the components are to be reconsidered in periods of organizational change within the educational system or changes in principals' work instructions (Brama 2004). A similar measure was developed by Tschannen-Moran and Gareis (2004) called the Principal Sense of Efficacy Scale (PSES). This instrument was based on their previous work with the Teacher Self-Efficacy Scale (TSES) (Tschannen-Moran and Hoy 2001). The construct validity of the scale was assessed using a measure of work alienation (Forsyth and Hoy 1978). This survey included items concerning various aspects of the principals' context and work alienation. Using principal component factor analysis (PCA), the original 50-item questionnaire for personal efficacy was reduced to 18 items. Three factors emerged: efficacy for management, efficacy for instructional leadership and efficacy for moral leadership. All dimensions were significantly and negatively correlated with work alienation at $r = -.37, -.41, -37 (p < .01)$, respectively. The researchers concluded that this scale was promising for future research on how to measure principals' sense of efficacy (Tschannen-Moran and Gareis 2004, 2005).

Research on principal self-efficacy usually includes measures of multidimensional self-efficacy in order to capture different aspects of principals' work. A problem with both of the aforementioned studies as well as other studies may be that the instruments for capturing principals' self-efficacy are reduced to only a few dimensions or do not take into consideration the hierarchal structure that characterizes leaders' self-efficacy (Hannah et al. 2008). Thus, they may not capture all the important aspects of the principals' work. One purpose of the present study was therefore to develop an instrument for measuring principals' self-efficacy with a broader variety of their functions and responsibilities.

1.3 Work engagement

Different concepts of work engagement have been present for more than two decades and may particularly be seen in the consulting and development business. Thus, the concept is often expressed in conjunction with organizational development and human relations departments. The idea of employee engagement was probably first introduced

commercially in the 1990s by the Gallup organization, which conceptualized engagement as the individual's involvement, satisfaction and enthusiasm for work (Schaufeli and Bakker 2010). More recently, attention to work engagement has increased in academic contexts. Within this field, work engagement is often associated with the paradigm of positive psychology, focusing on people's strengths and optimal functioning. This may be viewed in opposition to traditional psychology, which is often regarded as having a focus on mental illness instead of mental wellness (Bakker et al. 2008; Schaufeli and Bakker 2010).

According to Schaufeli and Bakker (2010), there is no universal consensus on how the concept of work engagement should be defined. At first glance, it seems possible to identify a distinction between definitions of work engagement in academic research and business. The academic definition is often related to the work role or work activity, whereas the business focus is on the individual's or group's relation to the organization (Schaufeli and Bakker 2010). The latter definition does not necessarily capture the academic content of work engagement, but may have parallels with more traditional concepts such as job involvement or job satisfaction (Schaufeli and Bakker 2010).

The concept of work engagement originated in academic research in the 1990s with the work of Kahn (1990), who conceptualized work engagement in terms of employees who put a great amount of effort into their work because they felt some type of identification with the work itself or the work role (Kahn 1990). Rothbard (2001) derived another perspective from the work of Kahn by developing a two-dimensional motivational concept of attention and absorption (Rothbard 2001). This attention dimension consisted of an individual's cognitive availability and the amount of time spent thinking about work. Absorption referred to the intensity of one's focus on a role (for more extensive reading see Rothbard 2001). This initial research seems to be both the foundation and source of inspiration for contemporary views on work engagement.

Schaufeli and Bakker (2010) describe two different but related views of work engagement that they consider to be a positive work-related state of well-being or fulfillment (Bakker et al. 2008). The first approach considers work engagement as the opposite or positive antithesis of burnout, a measurement model with three dimensions consisting of exhaustion, cynicism and reduced professional efficacy. Low scores on the first two dimensions and high scores on professional efficacy indicate engagement (Maslach et al. 2001). The alternative view considers work engagement as a separate concept, which correlates negatively with burnout. In this view, work engagement is defined as: "A positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al. 2002). According to this definition, work engagement refers to a feeling of fulfillment and is a persistent and pervasive affective-cognitive state not focused on any particular object, event, individual or behavior (Schaufeli and Bakker 2010; Schaufeli et al. 2006). People who experience work engagement have a sense of an energetic and effective connection with their work activities, and see themselves as being able to deal well with the demands of their job (Schaufeli and Bakker 2004).

The three dimensions that constitute work engagement are described separately with different properties. *Vigor* is characterized by high levels of energy and men-

tal strength. The individual has a desire to put some effort into work and possesses the ability to persist in the face of difficulties. *Dedication* refers to being involved in work and experiencing significance, enthusiasm, inspiration, pride and challenge, while *absorption* refers to being concentrated and involved in one's own work (Bakker et al. 2008; Schaufeli and Bakker 2010; Schaufeli et al. 2006, 2002).

The Utrecht Work Engagement Scale (UWES) is based on a definition that includes vigor, dedication and absorption (Bakker et al. 2008; Schaufeli and Bakker 2010; Schaufeli et al. 2006, 2002). This three-dimensional instrument consists of a full version containing 17 items, a short version containing nine items and a student version (Schaufeli and Bakker 2010). Various studies have been conducted to investigate the discrepancy between the UWES definition of work engagement and related concepts. This concept is different from burnout (Schaufeli and Bakker 2010; Schaufeli et al. 2002), job involvement (Hallberg and Schaufeli 2006), organizational commitment (Hallberg and Schaufeli 2006) and workaholism (Schaufeli et al. 2008).

Previous research within the UWES framework has documented that work engagement is positively related to different job characteristics such as resources and motivators (Schaufeli and Bakker 2004). Resources and motivators include support from one's co-workers and superiors, performance feedback, coaching, job autonomy, task variety and training facilities (Demerouti et al. 2001a; Salanova et al. 2003; Schaufeli and Bakker 2004, 2010). Research on the consequences from the experience of work engagement has demonstrated that the concept is related to positive attitudes towards work. This includes job satisfaction, commitment and low turnover intentions (Demerouti et al. 2001a; Schaufeli and Bakker 2004). Additionally, work engagement is also related to positive organizational behavior such as personal initiative, learning motivation (Sonnentag 2003) and extra-role behavior (Salanova et al. 2005). Finally, in a study by Salanova et al. (2005) of Spanish hotels and restaurants, the researchers found that work engagement was positively related to job performance. The study examined the mediating role of the service climate in the prediction of employee performance and customer loyalty. They found that organizational resources and work engagement predict the service climate, which in turn predicts employee performance and customer loyalty (Salanova et al. 2005).

1.4 Self-efficacy and work engagement

Research on self-efficacy has shown that efficacy beliefs predict motivational responses such as effort and persistence, whereas self-efficacy is negatively related to stress and anxiety (Bandura 1977, 1982, 1994, 1997, 2001). Hence, it is reasonable to expect a positive relation between self-efficacy and work engagement. This expectation is supported by several studies. Attention has been devoted to the role of self-efficacy in the Job Demands-Resources Model (JD-R) (Demerouti et al. 2001b). Prieto (2009) expanded the JD-R model and regarded self-efficacy as a personal resource in the prediction of work engagement. The results revealed that self-efficacy significantly predicted work engagement as measured by the UWES (Prieto 2009). Another paper (Sweetman and Luthans 2010) discussed the relation between psychological capital and work engagement. Psychological capital can be thought of

as a concept similar to personal resources which include self-efficacy, optimism, hope and resilience (Sweetman and Luthans 2010). According to Sweetman and Luthans' discussion, these concepts facilitate work engagement, and they argued that efficacy is the most important psychological mechanism for producing positive work-related outcomes. This type of relation is also supported in a meta-analysis by Halbesleben (2010). The meta-analysis searched for correlations between various concepts and work engagement. In the analysis, self-efficacy was regarded as a resource which was hypothesized to be positively associated with work engagement. The analysis revealed that self-efficacy had an estimated correlation of .50, ($p < .01$) to overall engagement.

A study by Xanthopoulou et al. (2007) examined the relation between personal resources (self-efficacy, organizational-based self-esteem and optimism) and work engagement in a study of Dutch technicians. The results showed that engaged employees are highly self-efficacious, and believe they are able to meet the demands they face in a broad array of contexts (Xanthopoulou et al. 2007). Finally, and most relevant to the present study, Bakker et al. (2006) found in a study of female principals that those with the most personal resources scored highest on work engagement. In particular, they found that resilience, self-efficacy and optimism contributed to both work engagement and a positive relation between principals' work engagement and teacher ratings of performance and leadership. Furthermore, the analysis revealed that engaged principals scored higher on in-role and extra-role performance and that work engagement was also strongly related to creativity. The higher the principals' levels of work engagement, the better they were able to come up with a variety of ways to deal with work-related problems. Finally, engaged school principals were seen as transformational leaders – able to inspire, stimulate and coach their co-workers (Bakker et al. 2006).

2 The present study

The role of the Norwegian principal has been subjected to major changes within the Norwegian school system over the last five decades. The need for professional leadership has been emphasized since the 1980s when the government called for a clearer distribution of authority and administrative management. This took place as a result of the emerging New-Public Management governance of the public sector, with target-oriented management and profit responsibility (Møller 2004; Møller and Fuglestad 2006). In the 1990s, the character of governance evolved towards giving increased autonomy to school leaders. The principal's work descriptions changed and new areas of responsibility such as mercantile and personnel administration arose (Benestad and Pleym 2006; Møller 2004; Møller and Fuglestad 2006). Since the millennium, even larger changes have appeared in the governance of education. The previous idea of organizing an equivalent education through detailed governance has been replaced with trust. This trust is based on the assumption that teachers, principals and school owners have the necessary competence for implementing the national objectives for education. Keywords in national governance are: common goals, results, evaluation, clear location of responsibility and increased local freedom.

Norwegian principals are supposed to monitor and enhance activities in schools. They are responsible for all aspects of school management as well as for future development. These responsibilities require well-developed social and leadership skills, mercantile skills, and instructional and administrative skills (Benestad and Pleym 2006). In addition, principals have to relate to internal and external expectations that arise from various locations, e.g. politicians, the press, school owners, parents, employees and pupils. The work content has changed tremendously over the past decades, and new tasks and areas of responsibility have become apparent. This expanded area of responsibility is believed to have consequences for role implementation.

One purpose of the present study was to develop an instrument that could capture self-efficacy in relation to different areas of responsibilities and relations. Bandura (2005) criticized the use of general and non-specific self-efficacy scales. Such scales have little predictive value, as an individual's general efficacy is usually not specific enough for the actual domain under study. For that reason, scales for measuring principals' self-efficacy must be tailored to the specific domain and reflect specific tasks and responsibilities (Bandura 2005). The development of the NPSES was therefore initiated with five semi-structured qualitative interviews with principals from different public elementary schools and middle schools (1^{st}–10^{th} grade) from two Norwegian counties.

The main objective of the interviews was to obtain a description of a typical working day. Data collected from the interviews was sorted into categories of tasks and responsibilities that the principals perceived as important aspects of their functioning. Van Etten et al. (2008) describe this as an inductive qualitative research design in which researchers approach their study with a vague hypothesis; in this case, it was an idea of what categories would appear. A primary focus was to induce categories that are viewed as credible because they are based on analyses of data and then tested in a subsequent deductive quantitative study (Van Etten et al. 2008). Eight categories were derived from the interviews and a 22-item questionnaire was developed on the basis of these categories.

In the present study we report on three models of the NPSES and the UWES, respectively, using a first- and second-order confirmatory factor analysis (CFA). We then use structural equation modeling (SEM) to analyze two different models of relationships between self-efficacy and work engagement. Finally, we present the mean scores for each dimension of the NPSES and the UWES, respectively.

3 Method

3.1 Participants and procedure

Participants in the study were principals of public elementary schools and middle schools (1^{st}–10^{th} grades) in Norway. A total of 569 public schools were randomly drawn from a list containing 2,900 schools, representing all the public schools in Norway. Of the 569 principals who were invited to participate in the survey, 300 responded positively. This amounts to a response rate of 53%, which may be considered low with respect to selectivity. However, considering the randomly drawn sample, we assume

that the non-responses were random. This is supported by the distribution of gender and age in the sample compared to this distribution within the population of Norwegian principals.

Data were collected using an electronic questionnaire. Information about the study and an invitation to participate were first distributed by mail to each of the respondents. Two weeks later, each respondent received a personal link to the survey which was sent by e-mail.

The sample consisted of 52.8% males and 47.2% females. The age of the principals ranged from 32 to 69 years old, and the mean age was 52 years. The average amount of teaching experience before becoming a principal was 19 years and the average number of years of managing experience was 11. The sample consisted of principals from different school levels: 58.7% from elementary schools, 15.3% from middle schools and 19.7% from elementary and middle schools combined. School size varied from 6 to 1,300 pupils, with an average of 232.

3.2 Instruments

All instruments in the present study were developed and administered in Norwegian. Examples of sample items in the Appendix represent translations from Norwegian into English.

3.2.1 Principal self-efficacy

Principal self-efficacy was measured by a multidimensional 22-item Norwegian Principal Self-Efficacy Scale. The scale consisted of eight dimensions with a different number of items on each subscale. The dimensions were all developed to cover various aspects of a principal's work that were assumed to be relevant. Item construction was conducted following Bandura's recommendations (Bandura 1997, 2005). Since self-efficacy is concerned with perceived capabilities, the items should contain verbs such as "can" or "be able to" in order to make it clear that the item asked for mastery expectations because of personal competence. The subject in each statement should be "you" since the aim was to assess each principal's subjective belief about his or her own capability. Responses were given on a seven-point scale ranging from "Not certain at all" (1) to "Absolutely certain" (7).

Instructional leadership consisted of two items with a Cronbach's alpha of .71. An example of an item is: "How certain are you that you can initiate, plan and carry out instructional development?" This dimension attempts to capture the principal's mastery expectations in relation to managing and developing the school's educational platform. *Economic management* consisted of two items with a Cronbach's alpha of .88. An example of an item is: "How certain are you that you can keep track of the school's finances?" These items attempt to examine the mercantile side of principals' self-efficacy. Norwegian principals are responsible for the school's finances and are held accountable in times of deficits. Three of the eight dimensions of the NPSES focused on principals' expectations of being able to cooperate effectively with persons or institutions outside or external to the school where they were employed.

These are: relation to municipal authority, parental relations and relation to local community. The *municipal authority* is the principals' employer. This dimension consists of two items, with an example of an item being: "How certain are you that you can collaborate with the municipal authority about future directions for the school?" *Parental relations* also consist of two items in which the questions ask about conditions such as: "How certain are you that you can develop a good cooperation between school and home?" The third dimension that can be considered as an external relation is the relationship with the local community. This dimension mainly focuses on the relationship with local businesses, groups or institutions such as museums and other resources in the local community such as outdoor areas or associated individuals, and consists of three items. An example of an item is: "How certain are you that you can maintain contact and cooperate with local businesses?" The three dimensions had a Cronbach's alpha of .52, .82 and .84, respectively. Despite its low alpha value, the dimension concerning the relationship with municipal authority was retained on both statistical and theoretical bases. The correlation between the two items was .35($p < .01$), and removing the dimension or one of the items did not contribute to a better fit using CFA. The theoretical argument is based on the importance of this relationship as noted in the interviews and the emphasis of this relationship in governance documents.

The three remaining dimensions of the NPSES are self-efficacy for administrative management, teacher support and school environment, respectively. *Administrative management* consists of four items, with one example: "How certain are you that you can follow up and implement all decisions taken?" The Cronbach's alpha for this dimension was .82. *Teacher support* consisted of two items with a Cronbach's alpha of .78. This dimension focuses on the principals' expectations of being able to support teachers who are struggling. An example of an item is: "How certain are you that you can attend to and support teachers who are struggling with strain or exhaustion" The last dimension of the NPSES is *school environment,* which consists of five items and focuses on both teachers and pupils. The content of this dimension tries to capture principals' self-efficacy for creating a good school environment and positive climate. Some examples of items are: "How certain are you that you can develop a good psychosocial environment for the pupils?" and "How certain are you that you can develop a school in which all teachers experience well-being?" Cronbach's alpha on this dimension was .89.

3.2.2 Work engagement

The principals' work engagement was measured by the Utrecht Work Engagement Scale (UWES). The UWES is available in different languages and two main versions exist: the full and the short version, with 17 and 9 items on each scale, respectively (Schaufeli and Bakker 2004).The different versions of the instrument have been tested in various countries, where the instrument has exhibited both a stability and factorial invariance between nations and occupational groups. In addition, the three-factor structure repeatedly shows a best fit to data compared to a one-factor structure using confirmatory factor analysis, although the three dimensions are usually strongly

correlated. According to Schaufeli and Bakker (2010), it could be difficult to identify these dimensions using an exploratory factor analysis. They conclude that work engagement measured by the UWES is a unitary construct constituted of the three dimensions, so it might be reasonable to use the total score of the UWES as an indicator of work engagement.

In the present study, we used a previously translated Norwegian version of the UWES (Schaufeli and Bakker 2004) that consists of both the full and short versions, and we took advantage of the short one. According to Schaufeli and Bakker (2004b), the short version was developed by analyzing multiple samples from the full version, in which a selection of items for the short version was partially made on the basis of regression analyses. The short version is also constituted by the three dimensions (vigor, dedication and absorption). The dimensions consist of three items each and responses were given on a seven-point scale ranging from "Never" (1) to "Daily" (7).

Vigor refers to high levels of energy and resilience, investment of effort, perseverance and persistence in the face of difficulties. An example of an item is: "At work, I feel like I'm bursting with energy." This dimension had a Cronbach's alpha of .90. The dimension of dedication had a Cronbach's alpha of .86. An example of an item is: "I am enthusiastic about my job." Dedication attempts to capture a principal's experience of feeling enthusiastic, proud, inspired and challenged by work. The last dimension, absorption, refers to being totally and happily immersed in work and having difficulties detaching oneself from it. The Cronbach's alpha was .78. An example of an item is: "I am immersed in my work."

3.3 Data analysis

The data were analyzed by means of a confirmatory factor analysis (CFA) and structural equation modeling (SEM). These methods are powerful statistical tools for examining the relationship between latent constructs and test a priori hypotheses regarding relationships between observed and latent variables. This methodology takes a confirmatory approach to the analysis of data (Byrne 2010; Jackson et al. 2009). Since CFA is part of the larger family of SEM, it usually plays an essential role in evaluating the measurement model before a structural analysis is conducted. Structural analysis is then used for specifying and estimating models of linear relationships between both observed and latent variables (Jackson et al. 2009; MacCallum and Austin 2000).

When conducting SEM, the analysis produces an estimated population covariance matrix based on the model specified. A key element of SEM is to assess whether the model produces an estimated matrix consistent with the sample matrix (Tabachnick and Fidell 2007). This consistency is investigated through various measurement indices of goodness of fit. If the goodness of fit is adequate, it supports the plausibility of the model specified. Different measures of fit are available and are assessed through different indices such as CFI, IFI, TLI and RMSEA, as well as chi square test-statistics. For the CFI, IFI and TLI indices, values greater than .90 are typically considered acceptable, whereas values greater than .95 indicate a good fit to the data (Byrne 2010;

Hu and Bentler 1999). For well-specified models, an RMSEA of .06 or less indicates a good fit (Hu and Bentler 1999).

The data were initially screened for univariate and multivariate normality and outliers using PASW Statistics 18 and AMOS 18. The data set contained missing data that were assumed to be missing completely at random. A missing value analysis was conducted with PASW Statistics 18. The results revealed that there were no variables with 1.7% or more of missing values. Little's MCAR test was used to test whether data were missing completely at random. The test showed a non-significant result ($\chi 2(422, N = 300) = 394.20, p = .83$).

Further analyses were conducted using AMOS 18 software. Maximum likelihood estimation was employed to estimate all models based on their corresponding covariance matrix. Since some of the features in AMOS would not be available with missing data, analyses initially used an imputed data set. The imputation of missing data was conducted using AMOS' integrated function, which creates a new dataset with complete data. This regression imputation uses linear regression to predict the unobserved values for each case as a linear combination of the observed values for that same case. Predicted values are then plugged in for the missing values (Arbuckle 2009). The results in the present study are based on the original dataset with missing data, which showed more or less identical results compared to the imputed set. When AMOS 18 is confronted with missing data, the software performs a state-of-the-art estimation using full information maximum likelihood instead of relying on ad hoc methods such as list- or pair-wise deletion (Arbuckle 2009).

4 Results

4.1 Measurement model: NPSES

The factor structure of the NPSES was explored by testing three theoretical models by means of first- and second-order confirmatory factor analyses. Model 1 consisted of one primary factor with loadings on all 22 observed items. This model was tested to ascertain whether principals' self-efficacy could be treated as a one-dimensional construct. Model 2 defined eight correlated primary factors corresponding to the eight theoretical dimensions. Model 3 defined eight primary factors and one second-order factor underlying the primary factors. The three theoretical models are presented in Fig. 1.

Model 1 did not fit the data ($\chi 2(209, N = 300) = 1220.92, p < .001$, CMIN/DF= 5.842, RMSEA = 0.127, IFI = 0.696, TLI = 0.662, and CFI = 0.694). Models 2 and 3 had a good fit to the data ($\chi 2$ (181, N = 300) 309.23, p < .001, CMIN/DF = 1.708, RMSEA = 0.049, IFI = 0.962, TLI = 0.951, and CFI = 0.961) for Model 2 and ($\chi 2$ (201, N = 300) 372.82, p < .001, CMIN/DF = 1.855, RMSEA = 0.053, IFI = 0.949, TLI = 0.940, and CFI = 0.948) for Model 3. All regression weights in Models 2 and 3 were significant at $p < .001$. The correlations in Model 2 are presented in Table 1.

Results from the confirmatory factor analyses verify that principal self-efficacy is a multidimensional construct. In the present study, principal self-efficacy consists of

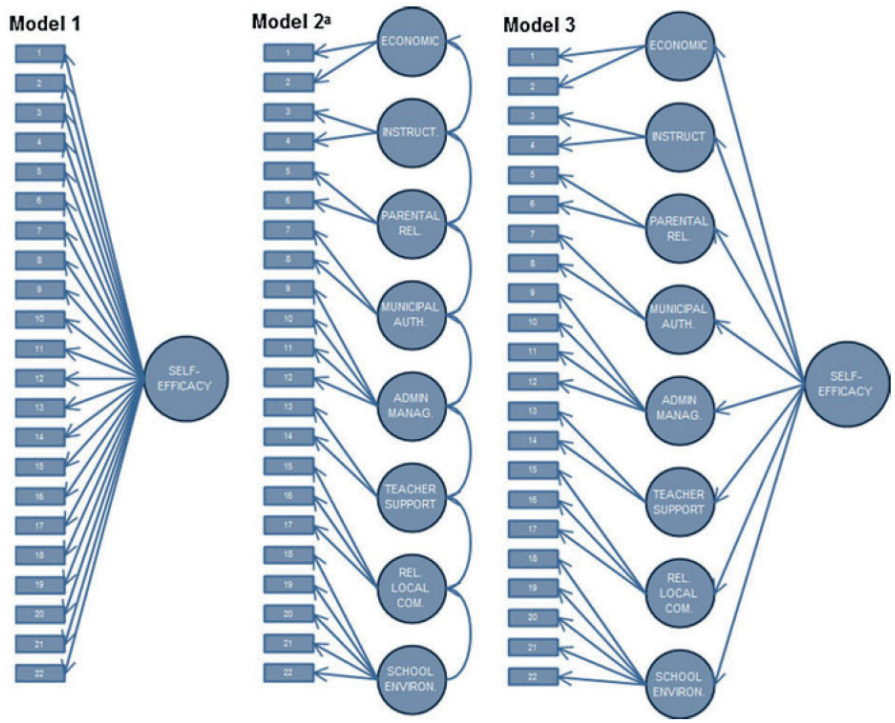

Fig. 1 Three hypothesized models of the NPSES. Model 1: one primary factor with regression weights on the 22 observed items. Model 2: eight correlated primary factors and their respective items. Model 3: eight primary factors and one second-order factor. [a] All latent variables are internally correlated

Table 1 Correlations between the eight dimensions of the NPSES in theoretical Model 2

Dimension	1	2	3	4	5	6	7	8
1. Economic management	–							
2. Instructional leadership	.278	–						
3. Municipal authority	.403	.606	–					
4. Parental relations	.341	.725	.563	–				
5. Local community	.293	.299	.634	.427	–			
6. Admin. management	.470	.691	.722	.684	.487	–		
7. Teacher support	.286	.675	.648	.596	.313	.570	–	
8. School environment	.410	.779	.595	.701	.421	.773	.636	–

All correlations are significant at $p < .001$

eight correlated primary factors with 22 corresponding items. The correlations vary from moderate to strong. Self-efficacy can be regarded as both domain-specific and multidimensional, and the second-order analysis also indicates that the concept is constituted by a more general domain-specific experience of self-efficacy.

4.2 Measurement model: UWES

Since principals' work engagement was measured by a translated version of the UWES, initial analyses consisted of exploratory factor analyses (EFA) to investigate whether the three predicted dimensions would actually appear. The results from EFA (maximum likelihood with Varimax rotation) indicated that work engagement in this case consisted of only two factors based on eigenvalues greater than 1. Thus, further analysis became necessary, and the procedure chosen was a confirmatory factor analysis that took the result from EFA into consideration.

Three models of the UWES were tested. Model 1 defined work engagement in terms of three correlated primary factors, which are in accordance with theory and previous research. Model 2 defined work engagement as a single first-order factor with loadings on the nine observed items. Model 3 defined work engagement as a first-order factor consisting of seven items, in which the two items that constituted Factor 2 on EFA were excluded. Models 1 and 2 did not fit data with goodness of fit indices of, respectively, ($\chi 2$ (24, N = 300) = 235.25, p < .001, CMIN/DF = 9.802, RMSEA = 0.172, IFI = 0.898, TLI = 0.846, and CFI = 0.897) for Model 1 and ($\chi 2$ (27, N = 300) = 359.70, p < .001, CMIN/DF = 13.22, RMSEA = 0.203, IFI = 0.839, TLI = 0.785, and CFI = 0.839) for Model 2. Results from the analysis of Model 3 indicated a good fit ($\chi 2$ (12, N = 300) = 23.86, p < .001, CMIN/DF = 1.989, RMSEA = 0.057, IFI = 0.993, TLI = 0.988, and CFI = 0.993). All regression weights in Model 3 were significant at p < .001.

The results from the CFA were somewhat unexpected with regard to theory and previous research. However, according to Schaufeli and Bakker (2010), work engagement measured by the UWES may be regarded as a unitary construct in which the total score can be used as an indicator. In this case, two items were unsound and therefore removed from the analysis.

4.3 SEM: relation between the NPSES and the UWES

According to Jackson et al. (2009), challenges with SEM often occur because the measurement models of the structural analysis consist of issues that are not properly investigated. Measurement models should first be examined, and it is essential that they reflect the desired constructs under study. The initial analyses consisted of an evaluation of the measurement models of the NPSES and the UWES, respectively. The analyses revealed that two models of the NPSES and one model of the UWES had an acceptable goodness of fit. Further analyses focused on the relation between self-efficacy and work engagement in which two theoretical models were analyzed by means of SEM. Both models specify self-efficacy as a predictor of work engagement. Models 1 and 2 are shown in Figs. 2 and 3.

Model 1 consisted of two first-order measurement models, the NPSES and the UWES, respectively. The NPSES consisted of eight latent exogenous variables (the eight dimensions of the NPSES) predicting the latent endogenous variable work engagement. The model had an acceptable fit to data ($\chi 2(340, N = 300) = 574.74$, $p < .001$, CMIN/DF = 1.690, RMSEA = 0.048, IFI = 0.955, TLI=0.946, and CFI= 0.955). Only two dimensions of the NPSES contributed significantly to work

Fig. 2 Theoretical model of the relation between the NPSES and the UWES. Eight correlated primary factors of the NPSES and the first-order factor of the UWES

engagement: Instructional leadership ($\beta = .50$, $p < .05$) and administrative management. ($\beta = .37 p < .05$). Estimates of non-standardized and standardized regression weights for all the variables and the squared multiple correlations for work engagement are presented in Table 2.

The results presented in Table 2 were somewhat unexpected and may be due to multicollinearity between some or all dimensions in the NPSES. Remember that in Table 1 all latent variables were significantly correlated in the first-order CFA of Model 2 (NPSES). Multicollinearity does not reduce the predictive power of the model as a whole, but it may affect the estimation of regression weights for each dimension. Models with multicollinearity tend to estimate the independent variables with less

Fig. 3 Theoretical model of the relation between the NPSES and the UWES. The second-order model of the NPSES and the first-order factor of the UWES

precision than if the predictors were uncorrelated with one another. This means that multicollinearity does not bias the results, but instead produces larger standard errors that lead to non-significant results. On that basis, we conducted SEM analyses for each individual dimension to investigate the relation with work engagement. All regression weights predicted work engagement significantly when we used $p < .01$. Estimates of non-standardized and standardized regression weights for all the variables and squared multiple correlations for work engagement are presented in Table 3.

Based on the unexpected results from the structural analysis of Model 1 and previous analyses in which two CFA models of the NPSES resulted in an acceptable fit, we decided to also test the second-order model in relation to work engagement. Model 2 consisted of one second-order exogenous variable (self-efficacy) and nine first-order latent endogenous variables (the eight dimensions of the NPSES and work engagement). This model also had an acceptable fit to the data ($\chi 2(367, N = 300) =$

Table 2 Eight dimensions of the NPSES and their corresponding regression weights on engagement

Latent variable	Unstandardized factor loadings	Standardized factor loadings	R^2
Engagement			.312
Economic management	.013	.020	
Instructional leadership	.654**	.498	
Municipal authority	−.104	−.103	
Parental relations	.056	.053	
Local community	.038	.044	
Admin. management	.415**	.368	
Teacher support	−.202	−.173	
School environment	−.240	−.175	

**$p < .05$

Table 3 Summary of eight separate SEM analyses testing the relation between each dimension of NPSES and engagement

Latent variable	Unstandardized factor loadings	Standardized factor loadings	R^2
Economic management	.090*	.167	.028
Instructional leadership	.720***	.485	.236
Municipal authority	.224*	.272	.272
Parental relations	.373***	.385	.148
Local community	.178***	.209	.044
Admin. management	.548***	.470	.221
Teacher support	.293***	.245	.060
School environment	.530***	.389	.151

***$p < .001$, *$p < .01$

652.91, $p < .001$, CMIN/DF = 1.779, RMSEA = 0.051, IFI = 0.945, TLI = 0.939, and CFI = 0.945). In this model, principal self-efficacy predicted work engagement with a standardized regression weight of $\beta = .48$, $p < .001$ explaining 23% of the variance of work engagement.

4.4 Mean scores of the NPSES and the UWES

The analyses of the NPSES and the UWES revealed that the theoretical models had an acceptable fit to the data. As a result, we therefore computed mean scores of the observed variables for each dimension of the NPSES and the UWES. The mean scores and standard deviations are presented in Table 4.

Remember that responses were given on a seven-point scale for both the NPSES and the UWES. The results presented in Table 4 indicate that the principals in the present study rate themselves slightly higher than the theoretical mean on both self-efficacy

Table 4 Means scores of the NPSES and the UWES

Variable	*N*	*M*	SD
NPSES			
Economic management	300	5.48	1.21
Instructional leadership	295	5.52	0.87
Municipal authority	299	4.89	1.02
Parental relations	297	5.81	0.80
Local community	298	4.53	1.11
Admin. management	284	5.11	0.84
Teacher support	295	5.56	0.85
School environment	292	5.44	0.71
UWES			
Work engagement	296	6.03	0.93

Range = 7

and work engagement. For principal self-efficacy, there seem to be no major differences between the dimensions, except for a lower means on relation with municipal authority and relation with local community.

5 Discussion

In numerous studies, self-efficacy has been shown to predict cognitions as well as emotions and behavior. For instance, self-efficacy has been demonstrated to be positively related to students' goals and aspirations, choices, effort, and persistence in the face of difficulties and academic performance. Studies of teachers also show that teacher self-efficacy predicts teachers' goals, motivation, job satisfaction and well-being, as well as their students' motivation and achievement.

Less attention has been given to principal self-efficacy, and there is also a lack of valid instruments measuring principal self-efficacy tailored to a variety of their functions and responsibilities. One purpose of this study was therefore to develop and test the factor structure of a multidimensional and hierarchical scale for measuring principals' self-efficacy in a variety of their functions and responsibilities. A second purpose was to explore the relation between self-efficacy and work engagement among Norwegian principals.

Based on interviews with principals in Norwegian elementary and middle schools, we identified eight areas of principals' functioning and responsibilities. The Norwegian Principal Self-efficacy Scale (NPSES) was then developed to measure the eight different dimensions of principal self-efficacy. A confirmatory factor analysis defining a single primary factor did not fit the data, whereas a model defining eight primary factors did have a good fit. When testing a third model, we also found support for a strong second-order self-efficacy factor underlying the eight dimensions.

These analyses clearly support the conceptualization of principal self-efficacy as a multidimensional construct. We found strong support for eight separate, but correlated dimensions. Consequently, one cannot adequately measure principal self-efficacy

without taking into consideration the variety of responsibilities given to school principals. The NPSES contributes to such a measure and may improve research on principal self-efficacy. However, it is tailored to the responsibilities of principals in Norwegian schools and needs to be validated in other countries.

The fact that we found eight separate but correlated dimensions of principal self-efficacy has implications for both educational practice and research. Given that self-efficacy predicts cognitions as well as emotions and behavior, e.g. principals' prioritizing, choices and effort, our analyses indicate that it is important that principals have strong efficacy beliefs in a number of areas of functioning. We may speculate that principals who have high self-efficacy beliefs in some areas and lower self-efficacy in other areas may give priority to those areas in which they have the strongest expectations of mastery. Hence, our results may have implications for both the selection and training of principals. In particular, the training of principals should cover a wide range of areas of responsibility. One could also question whether school principals have been given a range of responsibilities that is too broad. For instance, principals in Norwegian schools have a range of responsibilities that used to be maintained by the local school authority, such as responsibility for the school finances, for maintaining the buildings, for employing teachers and for developing a local curriculum. Although these reflections are speculations beyond our data, they point to important questions for future research as well as for practical school governance.

Although we found support for eight separate dimensions of principal self-efficacy, we also found support for a strong second-order factor underlying the eight dimensions. This indicates that in addition to self-efficacy beliefs for specific areas of functioning, school principals also have a more general domain-specific experience of self-efficacy. These findings make the instrument particularly useful for research purposes. The NPSES may be used to study the relations between a second-order self-efficacy factor and other constructs, though it may also be used to study the impact of specific dimensions of self-efficacy for different areas of principals' functioning. An important question for future research is whether principal attrition is most strongly related to their general domain-specific self-efficacy or to specific aspects of principal self-efficacy.

A second purpose of this study was to explore the relation between principal self-efficacy and work engagement. Work engagement was measured by a short seven-item version of the Utrecht Work Engagement Scale. Based on exploratory as well as confirmatory factor analyses, work engagement was treated as a single first-order factor. We tested two models by means of structural equation modeling to investigate the relation between self-efficacy and work engagement. In the first model we let the eight primary factors of self-efficacy predict work engagement, while the second model was designed to let a second-order self-efficacy factor predict work engagement.

The first-order model revealed that only two of the eight dimensions were significantly related to work engagement, namely instructional leadership and administrative management. Because such a result may be due to multicollinearity between the latent dimensions of self-efficacy, we also conducted separate SEM analyses of the relation between each of the eight dimensions of self-efficacy and work engagement. All regression weights significantly predicted work engagement. Nevertheless, the regression coefficients showed that the strongest predictor of engagement was

instructional leadership, followed by administrative management and school environment. Although this finding should be confirmed in future research, we may speculate that these three areas of functioning are perceived to be the most important and that self-efficacy for these functions, particularly instructional leadership, are therefore most strongly related to engagement. However, recent research shows that Norwegian school principals experience heavy workloads and serious time pressure and that they find little time for instructional leadership (OECD 2009). We may speculate that this may lead to both a lack of instructional leadership in public schools and to a reduced engagement among school principals. For this reason, we propose that the role and responsibilities of school principals must be examined, with the purpose of reducing the range of responsibilities to allow room for the execution of instructional leadership and the development of adaptive learning environments in schools.

The result of the analysis of the second-order model confirmed a positive relation between self-efficacy and work engagement. In this model, self-efficacy predicted work engagement with a standardized estimate of .48. The analyses of both the first- and second-order models are in accordance with previous findings of a moderate to strong relation between self-efficacy and work engagement (e.g. Bakker et al. 2006; Breso et al. 2008; Halbesleben 2010; Prieto 2009; Sweetman and Luthans 2010), which demonstrates that this relation is also strong for school principals. Although this result supports the notion that self-efficacy is important for principals' engagement in their work, firm conclusions about the causal direction cannot be drawn from the model testing. Schaufeli and Bakker (2004) state that although self-efficacy and work engagement are positively related, it is not clear whether self-efficacy precedes or follows engagement. They suggest that an upward spiral may exist; self-efficacy breeds engagement, which in turn increases self-efficacy, and so on.

Previous research has documented that work engagement has implications for employees' performance and is related to positive attitudes towards work (e.g. job satisfaction and commitment). Engaged employees bring their full potential into their jobs and go beyond the formal structures of their position to take initiative (Demerouti et al. 2001a; Leiter and Bakker 2010; Schaufeli and Bakker 2004). Such characteristics may be especially useful in professions that deal with a variety of tasks and relationships. Principals have to relate to a number of areas of functioning and variety of people in their work environment such as teachers and students. We may speculate that creating and sustaining a work environment that promotes work engagement may have a positive impact for the exercising of not only the principal and teacher professions, but also for student outcomes. Such assumptions should be investigated in future research.

The present study has several limitations. First, the concepts used in this study do not operate in isolation from other psychological determinants that may affect principals' motivation and performance. Other constructs should be explored in relation to those included in this study. Second, future research should investigate the causal relations between self-efficacy and work engagement by means of longitudinal studies. Another limitation is the probability that the sample size influenced the results. Both the factor structure of the NPSES and the relation with work engagement need to be verified with larger samples. We should also note that the Norwegian Principal Self-Efficacy Scale has not yet been tested in other cultures outside of Norway. We consider that the

eight dimensions constituting the NPSES could apply to all principals, although future research should verify the factor structure of the instrument in different contexts and cultures. Furthermore, even though the existence of the eight dimensions was empirically supported, other possible dimensions of principal self-efficacy should also be explored in future research.

Enhancing principals' self-efficacy and work engagement is an important objective for those responsible for improving the quality of leadership in schools. Norwegian principals' work is often described in terms of being demanding, hectic and unpredictable, in part because the curriculum and educational policy are often subject to change. Such changes require principals to be updated at any time in order to act efficaciously. Self-efficacy and engagement contribute positively to this functioning because they affect performance of the principals through mechanisms such as choice, effort, perseverance, initiative and extra-role behavior. In our view, providing both self-efficacy and work engagement is an important goal in the education of school principals. We also propose that the role and responsibilities of principals should be analyzed and designed to give realistic challenges and opportunities to conduct their responsibilities adequately. Additionally, future research should investigate the antecedents to a robust sense of principal self-efficacy and work engagement, and identify possible outcomes for schools, teachers and students.

Appendix

The 22 items of the Norwegian Principal Self-Efficacy Scale (NPSES)

How certain are you that you can:

Instructional leadership:

...develop this school's instructional platform.
...initiate, plan and carry out instructional development.

Economic management

...keep track of the school's finances.
...be sure that the finances of the school are under control.

Administrative management

...follow up and implement all decisions taken.
...have an ongoing evaluation of all activities at school and follow these up.
...always use your management prerogatives in relation to your employees in a constructive manner.
...facilitate work conditions for your staff in such a way that the work can be done constructively.

Teacher support

...support and assist teachers with challenges or problems.
...attend to and support teachers who are struggling with strain or exhaustion.

Parental relations

...collaborate with the parents' representatives.
...develop a good cooperation between school and home.

School environment

...develop a school in which all teachers experience well-being.
...engage your employees in their professional development.
...develop a good psychosocial environment for the pupils.
...engage the pupils to take responsibility to make the school a better place to learn.
...develop a school that is open and welcoming to the pupils.

Relation to municipal authority

...promote the school's needs to the municipal authority.
...collaborate with the municipal authority about future directions for the school.

Relation to local community

...use resources in the community (people and areas).
...ensure that the school has contact with various groups and institutions in the community.
...maintain contact and cooperate with local businesses.

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PAPER 2

Principal Self-Efficacy:

Relations with Burnout, Job Satisfaction and Motivation to quit

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Abstract

The purpose of this study was to explore relations between principals' self-efficacy, burnout, job satisfaction and principals' motivation to quit. Principal self-efficacy was measured by a recently developed multidimensional scale called the Norwegian Principal Self-Efficacy Scale. Burnout was measured by a modified version of the Maslach Burnout Inventory. Job satisfaction and motivation to quit was measured by two scales developed for the purpose of this study, respectively. Participant in the study were 1818 principals from the population of Norwegian principals. Data was collected by means of an electronic questionnaire. Two structural equation models were tested which specified principal self-efficacy as an exogenous variable and burnout, job satisfaction and motivation to quit as endogenous variables. The data was analyzed by means of SEM analysis for latent variables using the AMOS 18 program. Both models had acceptable fit to data. The results revealed that principal self-efficacy was positively related to job satisfaction and motivation to quit and negatively related to burnout. Burnout and job satisfaction was negatively related. Burnout was positively related to motivation to quit whereas job satisfaction was negatively related. The study highlights important relations between self-efficacy, burnout, job satisfaction and motivation to quit and extends the literature on principal self-efficacy and its relation to other concepts. The results of the study are discussed together with limitations and suggestions for further research.

Keywords: Self-efficacy, burnout, job satisfaction, motivation, leadership, SEM.

Introduction

The role of the principal is vital with respect to overall performance of the school because the position is essential to address challenges and changes of varying nature. In Norway, decentralization of decision-making and school-based management has placed greater responsibilities on the principals (Møller, Presthus, & Vedoy, 2009; Møller, Vedoy, Presthus, & Skedsmo, 2009). Principals have during the last years received increased attention from the educational governance which stresses the importance of an effective and competent exercise of the role to achieve educational goals (Ottesen & Møller, 2011).

The principals are responsible for all aspects of school management. Moreover, they have to relate to internal and external expectations that arise from different locations; for instance politicians, the press, school-owners, parents, employees and pupils. The exercise of these responsibilities requires the expectation to cope successfully (self-efficacy) in a number of different areas of functioning. A vast number of studies have shown that self-efficacy influences people's performance, persistence and motivation when carrying out tasks (Bandura, 1977, 1997, 2006). One may therefore assume that the exercise of the profession requires well-developed social and leadership skills, mercantile skills, instructional and administrative skills (Benestad & Pleym, 2006) and that principals preferably should experience high levels of self-efficacy in these areas in order to deal efficiently with their tasks.

Some empirical studies have been conducted on principal self-efficacy but there seems to be no common agreement about how the construct should be conceptualized or how it should be measured. Despite these differences, researchers find that self-efficacy influences the effort of principals and their work persistence as well as resilience in the face of setbacks (Tschannen-Moran & Gareis, 2004).

Previous studies of teacher and principal self-efficacy have shown that self-efficacy is negatively related to burnout, but positively related to job satisfaction (e.g. Evers, Brouwers, & Tomic, 2002; Friedman, 1995, 2002; Skaalvik & Skaalvik, 2009, 2010). A literature search on principal self-efficacy, burnout, and job satisfaction indicates that there are few or no studies which have focused on relations between these constructs in the same study. One purpose of the present study was therefore to explore relations between principal self-efficacy, burnout and job satisfaction.

Principals have to respond to a variety of tasks and sometimes contradicting expectations (Møller, Vedoy, et al., 2009). Such conditions may have implications for principals' levels of self-efficacy, burnout and job satisfaction which in turn may have implications for turnover intentions and motivation to quit. Another purpose of the study was therefore to investigate how these constructs relates to the principals' motivation to quit their job.

Theoretical framework

Self-efficacy

Self-efficacy is a key element in Bandura's social cognitive theory (Bandura, 1977, 1986, 1997). The social cognitive theory emphasizes the evolvement and exercise of human agency – an idea that people can exercise some influence over what they do. People are viewed as self-organizing, proactive, self-reflective, self-regulated and engaged in their own development. People can affect their own actions and possess the skills to control their own thought patterns and emotions. What they think, believe and feel create guidelines for behavior. The perception of reality, and thus behavior, is affected by the control and influence they experience over their lives (Bandura, 1986). Human functioning is viewed as the product of a dynamic interplay of personal, behavioral and environmental influences. This is the foundation of the reciprocal determinism which suggests that personal factors, behavior and

environmental influences create interactions that result in a triadic reciprocality (Bandura, 1989, 1997).

Self-efficacy is the individual's belief about what he or she can achieve in a given context. These beliefs influence the choices of action, how much effort is expended on an activity, and how long people will persevere when confronting obstacles (Bandura, 1997; Pajares, 1997). Self-efficacy influences self-regulatory processes where it determines how environmental opportunities and impediments are perceived. High levels of self-efficacy stimulate greater effort and persistence which in turn promotes positive perceptions of one's own capabilities (Bandura, 1997; Pajares, 1997). Individuals with high levels of self-efficacy tend to regard difficult tasks as challenges where those who doubt their capabilities tend to consider difficult tasks as threats (Bandura, 1994, 1997).

Principal self-efficacy

Research on leadership efficacy indicates that positive efficacy beliefs are vital to leaders' success because it determines the effort and persistence on a particular task as well as the aspirations and goals they set (Bandura, 1997; Gist & Mitchell, 1992). According to McCormick (2001) self-efficacy is as a key cognitive variable regulating leader functioning in dynamic environments (McCormick, 2001). A study by Chemers, Watson and May (2000) indicates that leaders' self-efficacy is important because it affect attitudes and performance of their followers. Leaders' efficacy beliefs are also related to their followers' commitment to organizational tasks and have a positive effect on employee's engagement (Chemers, Watson, & May, 2000). Still, despite the proven importance of positive efficacy beliefs for optimal functioning, the concept of leadership efficacy has received relatively little attention in the leadership literature (Hannah, Avolio, Luthans, & Harms, 2008). This is according to Hannah et al. (2008) surprising given that effective leadership requires both high levels of agency and

confidence. Similar conditions are prevailing regarding research on leadership efficacy in educational contexts.

The available studies conducted to investigate principals' efficacy beliefs are mostly based on Bandura's definition of self-efficacy and have focused partly on the structure of the construct and partly on how it relates to other concepts. Despite different approaches, previous studies indicate that principals' self-efficacy is associated with adaptive functioning. For example, Licklider & Niska (1993) found that principals' level of self-efficacy is associated with the quality of supervision of teachers (Licklider & Niska, 1993). According to Osterman & Sullivan (1996) efficacious principals tend to be more persistent in pursuing goals and are more adaptable to changes (Osterman & Sullivan, 1996). Moreover, principals with high self-efficacy experience higher levels of work engagement and job satisfaction, and lower levels of burnout and work alienation (Federici & Skaalvik, 2011; Tschannen-Moran & Gareis, 2004). Dimmock and Hattie (1996) found efficacy to be a valued element for principals in a school restructuring process (Dimmock & Hattie, 1996), whereas Smith, Guarino, Strom & Adams (2006) concluded that the quality of teaching and learning is influenced by the principals' efficacy (W. Smith, Guarino, Strom, & Adams, 2006). Lyons and Murphy (1994) found that inefficacious principals tend to use external power sources as the rights of management to force others into desired actions where efficacious principals use internal based power sources to lead and set examples for others to follow (Lyons & Murphy, 1994).

Based on previous studies it is likely to assume that principals' self-efficacy is of great importance with respect to the overall managing of schools and anticipated outcomes. In the present study we expect that principal self-efficacy will be positively related to job satisfaction and negatively related to burnout and motivation to quit.

Burnout

The term burnout first appeared in the 1970s especially among people in the human services. The initial research was characterized by various exploratory studies which had the goal of articulating the phenomenon (Maslach, Schaufeli, & Leiter, 2001). In the early phases there was no common agreement on the definition of burnout and researchers used different methods in the approach of investigating the concept. Despite these differences there was a common consensus about three core dimensions which were assumed to constitute the concept: emotional exhaustion, depersonalization, and reduced personal accomplishment. Different approaches within the field of burnout research exist (e.g. Friedman, 1995; Maslach, et al., 2001). The most pronounced work is probably conducted by Maslach who developed a multidimensional theory of burnout (Maslach, et al., 2001). This theoretical orientation takes into consideration the three dimensions and seems to be the most dominant approach in the field (Maslach, et al., 2001; Schaufeli, Leiter, & Maslach, 2009).

Maslach (2003) defines burnout as a psychological syndrome that involves a prolonged response to stressors in the workplace (Maslach, 2003). The experience of burnout is conceptualized as resulting from long-term occupational stress, especially among workers who deal with other people in some capacity (Maslach, et al., 2001; Schaufeli, et al., 2009). This conceptualization has led to research in a variety of fields, including teachers and principals (Combs, Edmonson, & Jackson, 2009; Friedman, 1995, 1998; Skaalvik & Skaalvik, 2009, 2010). The educational system is dynamic and principals need to cope with complex tasks and relations which often are subject to change (Møller & Fuglestad, 2006). Complex and dynamic jobs involve exposure to a wide range of pressures and employees in such positions are vulnerable to burnout (Allison, 1997; Whitaker, 1995). It is reasonable to expect that principals may experience some kind of stress although the reasons may differ. Hopefully

most principals cope successfully with their tasks and relations, but burnout may be the endpoint of unsuccessful coping.

According to Maslach et al. (2001) the most obvious manifestation of burnout is emotional exhaustion. This dimension is therefore the most analyzed and reported dimension of burnout in the research literature. Emotional exhaustion is conceptualized as the key element because people who suffer from burnout mainly tend to refer to the experience of exhaustion (Maslach, et al., 2001). According to Pines and Aronsen (1988) the exhaustion dimension of burnout should also include physical exhaustion which is characterized by low energy and chronic fatigue (Pines & Aronson, 1988). Individuals experiencing exhaustion are characterized by a chronic state of physical or emotional depletion which can be described as a feeling of being overextended and exhausted by one's work (Maslach, 2003; Schaufeli, et al., 2009; Schaufeli, Salanova, González-romá, & Bakker, 2002). Because of the strong manifestation of exhaustion some researchers have claimed that this dimension is sufficient for measuring burnout (Shirom, 1989). Maslach (2001) retorts that the remaining dimensions are important because exhaustion fails to capture important aspects of the relationship between people and their work. Exhaustion is not only experienced as uncomfortable for the individual, it also prompts actions to distance oneself emotionally and cognitively from work most likely because of work overload. For burnout among principals the dimension of depersonalization refers to a negative and cynical attitude towards ones colleagues, whereas reduced personal accomplishment refers to tendencies where principals evaluate themselves negatively as well as they experience the absence of the feeling of doing a meaningful job.

The Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Leiter, 1996) measures the three core dimensions of burnout and is available in three different versions; a version for human services, one for educators and one general survey. Research indicates that the three dimensions of burnout represent independent factors and cannot be added up to one single

measure (Byrne, 1994). The instrument has been tested in different cultures and provides both stability and factorial invariance between nations and occupational groups (Maslach, et al., 2001). Studies have been conducted to assess discriminant validity and have investigated the discrepancy between burnout and related concepts. According to Maslach et al. (2001) the two most pronounced concepts are depression and job satisfaction. Burnout can be differentiated from depression because burnout is a problem that is more directly related to the work context. Depression, on the other hand, tends to pervade every domain of a person's life (Maslach, et al., 2001). As for job satisfaction, the issue concerns the commonly found negative correlation between the concepts. Are the constructs identical? Maslach et al. (2001) states that the correlations between burnout and job satisfaction are not large enough to conclude that they are identical. But they are clearly linked. Still, it may be unclear to which degree burnout precedes or follows job satisfaction.

Several studies have demonstrated that burnout is related to both job satisfaction and self-efficacy (e.g. Evers, et al., 2002; LeCompte & Dworkin, 1991; Sari, 2005; Skaalvik & Skaalvik, 2007, 2009, 2010). Burnout is thus associated with decreased job performance, reduced job commitment (Tomic & Tomic, 2008) and stress-related health problems (Maslach, et al., 2001). Job-related stressors such as work load and time pressure correlates highly with burnout. Previous research has shown that there are several sources that influence or predict principals' burnout. A study by Friedman (2002) indicates that difficulties with teachers and demanding parents may be among the main stressors that contribute to principal burnout (Friedman, 2002). Other frequent sources of burnout are issues such as complying with organizational rules and policies, excessively high self-imposed expectations, the feeling of having a to heavy work load, increased demands and decreasing autonomy (Friedman, 1995, 1998, 2002; Sari, 2005; Whitaker, 1995; Whitehead, Ryba, & O'Driscoll, 2000).

In the present study we expect burnout to be negatively related to principal self-efficacy and job-satisfaction and positively related to motivation to quit.

Job satisfaction

The traditional model of job satisfaction focuses on all the different feelings that an employee possesses in relation to the job (Lu, While, & Barriball, 2005). One of the most cited definitions of job satisfaction is, according to Schaufeli and Bakker (2010), the one stated by Locke (1976). He defined job satisfaction as a pleasurable or positive emotional state resulting from the appraisal of one's job (Locke, 1976). Several similar definitions have been proposed by other researchers (e.g. Cranny, Stone, & Smith, 1992; Schultz, 1982; P. Smith, Kendall, & Hulin, 1969) indicating agreement that job satisfaction is regarded as an affective orientation towards one's job (Newby, 1999).

Job satisfaction research has focused on both the global and specific aspects of the concept. In other words, job satisfaction can manifest itself both as a global feeling towards one's work and as separated attitudes about various aspects or facets of the job. The global approach is most useful when the overall job satisfaction is of interest while the facets approach is used to explore which parts of the job that produce satisfaction or dissatisfaction (Lu, et al., 2005). Both of these approaches are of interest when measuring principals' job satisfaction. However there may be a problem with measuring facets and letting them indicate overall job satisfaction. This is due to differences in individuals' perception of which aspects of work that are experienced as satisfying. The problem with such measures is that they overlook the fact that the impact of different facets on overall job satisfaction is dependent on how important each of the facets are for the individual. In this study job satisfaction is therefore measured as an overall concept.

Despite differences in how the construct is conceptualized, various studies indicate that job satisfaction is related to both burnout (e.g. Maslach, et al., 2001; Skaalvik & Skaalvik,

2009) and self-efficacy (e.g. Judge, Thoresen, Bono, & Patton, 2001; Klassen & Chiu, 2010). Job satisfaction can also act as a buffer against negative influences at the workplace such as occupational stress (Saane, Sluiter, Verbeek, & Frings-Dresen, 2003). Research on school assistant principals has shown that job satisfaction is related to their beliefs of advancement in their school system, their feeling of accomplishment, and to what extent they feel that they use their talents and skills (Sutter, 1996).

In the present study we expect job satisfaction to be negatively related to burnout and motivation to quit and positively related to self-efficacy.

Motivation to quit

A vast number of studies of different professions indicate that there are numerous work-related factors that contribute to employees' motivation to quit the job or affect their turnover intentions (e.g. Chen & Scannapieco, 2010; Hayes et al., 2006; Hong, 2010; Tzeng, 2002). Previous research indicates that there is a negative relation between burnout and motivation (e.g. Hakanen, Bakker, & Schaufeli, 2006). Leung and Lee (2006) found, in a study of Hong Kong teachers, a positive relation between burnout and intention to leave the profession (Leung & Lee, 2006). The opposite results have been found regarding job satisfaction (e.g. Tzeng, 2002). Several studies have investigated the relation between self-efficacy and motivation to quit. This research indicates that self-efficacy may serve as a buffer against thoughts about quitting the job or turnover intension (e.g. Chen & Scannapieco, 2010; McNatt & Judge, 2008; Niu, 2010).

In the present study we expect motivation to quit to be positively related to burnout and negatively related to self-efficacy and job satisfaction. However, it is important to note that motivation to quit or turnover intentions are not the same as actual quitting behavior. According to LeCompte & Dworkin (1991) many who experience burnout and dissatisfaction never leave their jobs. Previous studies of teachers reveal weak associations between the

desire to quit and actual quitting. The belief in an alternative role is often a necessary precursor of actual quitting behavior because many people have invested much in their careers (Dworkin, 1987). Studies also indicates that individuals locus of control (see) (Rotter, 1966) is related to actual quitting behavior. Individuals who have an external locus of control are much less likely to actually quit than those who have an internal locus of control. Individuals with an internal locus of control may to a larger degree possess trust in their abilities to make a move (Dworkin, 1987; LeCompte & Dworkin, 1991). Similar patterns might also apply to self-efficacy.

The Present Study

The purpose of the present study was to explore relations between principal self-efficacy, burnout, job satisfaction and principals' motivation to quit the job. Initially we present descriptive statistics of the study variables. We then analyze the measurement model of self-efficacy, burnout, job satisfaction, and motivation to quit by means of confirmatory factor analysis (CFA) (for separate confirmatory factor analyses of the constructs, see Appendix A). Finally, we use structural equation modeling (SEM) to analyze two structural models. Two different models were hypothesized because of an uncertainty whether burnout precedes or follows job satisfaction.

Method

Participants and procedure

Participants in this study were principals of public and private elementary schools and middle schools (1^{st} - 10^{th} grade). All principals of such schools in Norway were invited to participate. This amounts to approximately 2900 schools. 1818 principals for individual schools responded to the survey. This amounts to a response rate of approximately 63% which may be considered as satisfying with respect to selectivity (Babbie, 2004; Gall, Gall, & Borg, 2007). Considering sample size we assume that non-responses are random.

Data were collected using an electronic questionnaire. Information about the study and an invitation to participate was first distributed by mail to each of the respondents. Two weeks later, each respondent received a personal link to the survey which was sent to their personal email.

The sample consisted of 47.1% males and 52.9% females. The age of the principals ranged from 29 to 70 years old. The mean age was 52 years. The average teaching experience before becoming a principal was 13.5 years and the average number of years of managing experience was 11.5. The sample consisted of principals from different school levels; 58.3% from elementary schools, 16.4% from middle schools and 23.1% from combined elementary and middle schools. The school size varied from 4 to 1300 pupils with an average of 215.

Instruments

All instruments in the present study were developed and administered in Norwegian. Examples of sample items represent translations from Norwegian into English.

Principal self-efficacy

A problem with some of the available instruments for capturing principals' self-efficacy may be that they are reduced to few dimensions or do not take into consideration the hierarchal structure or multidimensionality that characterizes leaders' self-efficacy (Hannah, et al., 2008). They may therefore not capture all important aspects of principals' work. Federici and Skaalvik (2011) recently developed a 22 item Norwegian Principal Self-Efficacy Scale (NPSES). This hierarchic and multidimensional instrument measures principals' self-efficacy in a broad variety of their functions and responsibilities. The NPSES is constituted by eight dimensions with different numbers of items on each subscale. Each dimension covers different aspects of a principal's work (see Appendix A for items). Federici and Skaalvik (2011) found support both for the eight dimensions as well for a strong second order self-efficacy factor underlying the eight dimensions (for psychometric properties and the

validation study, see Federici & Skaalvik, 2011). In the present study the second order model of the NPSES was of primary interest, because we sought to explore how a general domain-specific experience of principal self-efficacy relates to the other concepts.

The scale measures principals' self-efficacy within the following dimensions: (1) Instructional leadership (two items), (2) economic management (three items), (3) administrative management (four items), (4) teacher support (two items), (5) school environment (five items), (6) relation to municipal authority (three items), (7) parental relations (two items) and (8) relation to local community (three items).The instrument originally consisted of 22 items (Federici & Skaalvik, 2011) but for this study two additional items were added to increase the reliability and validity in two of the dimensions. The items were placed in the subscales of *relation to municipal authority* and *economic management* respectively. Responses were given on a 7-point scale ranging from "Not certain at all" (1) to "Absolutely certain" (7). Examples of items are: "How certain are you that you can keep track of the school's finances" (economic management)? and "How certain are you that you can collaborate with the municipal authority about future directions for the school" (municipal authority)? Cronbach's alpha for the dimensions were .81, .91, .78, .77, .86, .74, .86 and .87 respectively.

Burnout

Burnout was measured by means of a modified version of the Maslach Burnout Inventory (MBI), educators' survey (Maslach, et al., 1996). This study used a previously translated Norwegian version of the MBI for measuring teacher burnout (see Skaalvik & Skaalvik, 2007) but some words and expressions were modified to make the scale applicable for principals. Participants rated statements indicating that their work makes them feel emotionally drained or exhausted (emotional exhaustion, seven items), the feeling of being more insensitive with respect to one's employees (depersonalization, two items), and the

experience of being useful and contributing positively in relation to their colleagues (personal accomplishment, three items). Responses were given on a 7-point scale ranging from "Never" (1) to "Daily" (7).

Job Satisfaction

Principals' job satisfaction was measured by a 5-item scale developed for the purpose of this study. The measure focused on the principals' global feelings towards their work. The principals were asked to rate statements indicating their level of job satisfaction. The items are: "I get inspired by my job", "I really enjoy being a principal", "As principal, I am in my element", "I like to be the head of school" and "When I get up in the morning I look forward to going to work." Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6).

Motivation to quit

Motivation to quit as school principal was measured by means of two statements. The statements were: "If I had the opportunity to change my profession today, I would have done it" and "I would like to work as something else than a principal". Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6).

Data analysis

The data were analyzed by means of confirmatory factor analysis (CFA) and structural equation modeling (SEM). This methodology takes a confirmatory approach to the analysis of data (Byrne, 2010; Jackson, Gillaspy Jr, & Purc-Stephenson, 2009). CFA is part of the larger family SEM and plays an essential role in evaluating the measurement model before a structural analysis is conducted. Structural analysis is then used for specifying and estimating models of linear relationships between both observed and latent variables (Jackson, et al., 2009; MacCallum & Austin, 2000). According to Jackson et al. (2009), challenges with SEM

often occur because the measurement models of the structural analysis consist of issues that are not properly investigated. Measurement models should first be examined and it is essential that they reflect the desired constructs or factors under study.

The collected data constitute an empirical covariance matrix. This matrix is the foundation for structural equation modeling. When conducting SEM, the analysis produces an estimated population covariance matrix based on the model specified. A key element of SEM is to assess whether the model produces an estimated matrix that is consistent with the sample matrix (Tabachnick & Fidell, 2007). This consistency is investigated through different measurement indices of goodness of fit. If goodness of fit is adequate it supports the plausibility of the model specified. Different measures of fit are available and are assessed through indices such as CFI, IFI, TLI and RMSEA, as well as the chi square test-statistics. For the CFI, IFI and TLI indices, values greater than .90 are typically considered acceptable and values greater than .95 indicate a good fit to data (Byrne, 2010; Hu & Bentler, 1999). For well specified models, an RMSEA of .06 or less indicates a good fit (Hu & Bentler, 1999)

All data were initially screened for univariate and multivariate normality and outliers using PASW Statistics 18. The dataset contained missing data which were assumed to be missing completely at random (MCAR). We deleted 133 because they were missing 50% or more items in the scales used in this particular study (N = 1685). After deletion of these cases, Little's MCAR test was conducted to investigate the assumption of MCAR. The test supported the assumption with estimates of $\chi 2$ (3883, N = 1685) = 3548.80, p = 1.0.

Further analyses were conducted using the AMOS 18 software. Maximum likelihood estimation was employed to estimate all models based on their corresponding covariance matrix. Most of the analyses in AMOS are available with missing data. When confronted with missing data the software performs state-of-the-art estimation using full information

maximum likelihood (FIML) instead of relying on ad-hoc methods like list- or pairwise deletion (Arbuckle, 2009).

Since AMOS 18 doesn't provide standard errors (SE) and confidence intervals (CI) for all estimates, a bootstrap analysis was performed to estimate approximate SE and CI for the total and indirect effects. The bootstrap method is a versatile method for estimating the sampling distribution of parameter estimates; however, it requires complete data (Arbuckle, 2009; Byrne, 2010). Some analyses therefore used an imputed data set. An Expectation Maximization (EM) imputation of missing data was conducted using PASW Statistics 18. The EM imputation use an algorithm to find the maximum likelihood estimates of the means and the covariance matrix and uses these estimates to substitute the missing values (Arbuckle, 2009). It is reported when the EM imputed set is used and the results are compared with the findings from the original dataset.

Results

Correlations and descriptive statistics

Table 1 shows correlations between a selection of demographic variables and the study variables as well as possible maximum and minimum scores, statistical means, standard deviations and Cronbach's alphas.

Please insert Table 1 here

The zero order correlations between the variables vary from zero to moderate / strong and the strongest correlations are between self-efficacy, burnout, job satisfaction, and motivation to quit. The demographic variables are weakly related to the study variables. Further analyses included principal self-efficacy, burnout, job satisfaction, and principals' motivation to quit the job, and were conducted by means of CFA and SEM analyses.

Relations between self-efficacy, burnout, job satisfaction and motivation to quit

To investigate the measurement model and the relations between principal self-efficacy, burnout, job satisfaction and motivation to quit we first conducted a confirmatory factor analysis of the latent variables. None of the error variances in the model were allowed to correlate. The model had acceptable fit to data ($\chi 2$ (845, N = 1685) = 4055.74, $p < .001$, CMIN/DF = 4.805, RMSEA = 0.048, IFI = 0.925, TLI = 0.916, and CFI = 0.925). The correlations are presented in Table 2.

Please insert Table 2

The results show that all correlations between the latent variables are significant and the values indicate that these relations vary from moderate to strong. We further tested two structural models which were analyzed by means of SEM. The first theoretical model (Model 1) is shown in Figure 1.

Please insert Figure 1 here

The model specifies principal self-efficacy as the main unobserved exogenous variable and burnout, job satisfaction and motivation to quit the job as the unobserved endogenous variables. In the model we let burnout predict both job satisfaction and motivation to quit. Also we expected that job satisfaction would be related to motivation to quit. None of the error variances were correlated. Initial analysis revealed that all regression weights between the latent variables except one were significant at $p < .001$. The non-significant regression weight between principal self-efficacy and job satisfaction was removed (β = - .020, p = .706). The final model had acceptable fit to data ($\chi 2$ (845, N = 1685) = 4055.82, $p < .001$,

CMIN/DF = 4.800, RMSEA = 0.048, IFI = 0.925, TLI = 0.916, and CFI = 0.925). Estimates of unstandardized and standardized regression weights, standard errors and squared multiple correlations for the latent variables are presented in Table 3.

Please insert Table 3

The results show that all the regression weights in the final model are significant at $p <$ .001. Approximately sixty percent of the variation in principals' motivation to quit the job can be explained by the other variables in the model.

A second model was proposed because of the somewhat unexpected non-significant relation between self-efficacy and job satisfaction. Testing of a second model was also motivated by the uncertainty whether burnout precedes or follows job satisfaction. The theoretical model (Model 2) is shown in Figure 2.

Please insert Figure 2 here

The second model is specified to be identical to the first model except for the turned direction between burnout and job satisfaction. None of the error variances were correlated. This model had acceptable fit to data ($\chi 2$ (845, N = 1685) = 4055.74, $p < .001$, CMIN/DF = 4.805, RMSEA = 0.048, IFI = 0.925, TLI = 0.916, and CFI = 0.925). Estimates of unstandardized and standardized regressions weights, standard errors and the squared multiple correlations for the latent variables are presented in Table 4.

Please insert Table 4 here

The results show that all the regression weights in the model are significant at $p <$ .001. This model also accounts for approximately sixty percent of the variation in principals'

motivation to quit the job. A comparison of the two models reveals that the regression weights between the concepts are quite similar except for the regression weight between principal self-efficacy and job satisfaction in the first model.

We also asked for total and indirect effects between the variables of interest in both of the models. These estimates were compared with estimates from a bootstrap analysis from the same sample (2000 samples) to determine whether these effects were significant. The bootstrap analysis is based on the EM imputed dataset. The results are presented in Tables 7 and 8.

Please insert Tables 5 and 6 here

The analyses show that there are small differences in the estimates of total and indirect effects when comparing the results from the original dataset with the estimates provided from the EM imputed dataset. A comparison of these values is also supported by the bias corrected confidence intervals (CI_{90}) provided from the bootstrap analysis which all contained the respective estimate from the original dataset. Results from these analyses reveal that all the direct and indirect effects between the variables are significant at $p < .01$.

Discussion

The result of the analysis of Model 1 is in accordance with previous findings of a strong relation between teacher self-efficacy and burnout (e.g. Skaalvik & Skaalvik, 2007) and demonstrates that this relation is strong also for school principals. Supporting previous findings (Skaalvik & Skaalvik, 2010) we also found a strong relation between burnout and job satisfaction. Based on previous research (e.g. Bandura, 1997; Caprara, Barbaranelli, Steca, & Malone, 2006; Skaalvik & Skaalvik, 2007) we also expected a positive relation between self-efficacy and job satisfaction but were surprised by a small and non-significant regression weight. This path was removed from the model. However, we found a relatively strong

positive correlation between self-efficacy and job satisfaction as well as a strong positive indirect relation between these constructs. The indirect relation was mediated through burnout. Furthermore, we found that motivation to leave the position as principal was directly related to all other constructs in the model. Burnout was the strongest predictor of motivation to leave.

The analysis of Model 2 revealed similar goodness of fit indices as those found in Model 1. In this model we changed the direction of the relation between burnout and job satisfaction letting job satisfaction predict burnout. This model also showed a strong relation between the two constructs. Furthermore in this model, self-efficacy was directly and relatively strongly related to job satisfaction. Self-efficacy was both directly and indirectly related to burnout. The indirect relation was mediated through job satisfaction. Finally, Model 2 revealed, as did Model 1, that motivation to leave the position as principal was directly related to all other constructs in the model.

Both structural models support a relation between self-efficacy and burnout. Although the cross-sectional design prevents interpretation in causal terms, a possible interpretation of these results is that self-efficacy is important for principals' well-being. Self-efficacy is defined as the individual's belief about what he or she can achieve in a given context. Self-efficacy therefore influences how environmental opportunities and impediments are perceived (Bandura, 1997). Principals with low levels of self-efficacy may experience more uncertainty and doubt that they will be able to conduct important tasks to a greater extent than principals with higher levels of self-efficacy. The combination of high responsibility and a repeated feeling of uncertainty and doubt is a stressful and worrying situation that may lead to emotional exhaustion and, in the long run, to burnout. The experience of burnout, the emotional exhaustion, the cynical attitude, and the feeling of reduced accomplishment may,

over time, be followed by reduced job satisfaction. Such an interpretation is in accordance with the results of the analysis of Model 1.

The result of the analysis of Model 2 requires an alternative explanation. This model also indicates a direct but moderate relation between self-efficacy and burnout. But this model differs from Model 1 in that self-efficacy is directly related to job satisfaction. An alternative interpretation may therefore be that the feeling of uncertainty and the stressful situation detracts from job satisfaction. The persistent feeling of job dissatisfaction may, in addition to low self-efficacy constitute a very stressful working situation, leading to burnout.

Taken together, a possible interpretation of the analyses of the two structural models is that there may be a reciprocal relation between burnout and job satisfaction. In Model 1 we let burnout predict job satisfaction whereas we let job satisfaction predict burnout in Model 2. Reversing the causal direction in the second model did not result in any substantial changes of the fit indices or of the magnitude of the association between the two concepts. Both models demonstrate a strong relation between the two concepts but leave the question about the causal direction open. Previous research on causal direction is scarce. We therefore call for longitudinal studies exploring causal relations between burnout and job satisfaction.

Despite the difference between the two models it is important to note that, in both models, principals' motivation to quit the job was directly related not only to burnout but also to job satisfaction and self-efficacy. A possible explanation may be that low self-efficacy as well as low job satisfaction and high levels of burnout indicate stressful working situations which, over time lead to motivation to leave the position. Burnout was in both models the strongest predictor of principals' motivation to quit the job. Previous studies have explored these relations for people in different occupations like teachers, police officers, nurses and managers and have found similar results (e.g. Friedman, 1993; Grunberg, Moore, & Greenberg, 2006; Martinussen, Richardsen, & Burke, 2007; Robison & Pillemer, 2007;

Weisberg & Sagie, 1999). A possible explanation of the stronger association between burnout and motivation to quit the job may be that burnout manifests itself both as a mental and as a physiological discomfort (Pines & Aronson, 1988).

We had expected a negative association between job satisfaction and motivation to quit the job. Theoretically, we would expect that job satisfaction would increase engagement and therefore function as a barrier against motivation to quit. In accordance with our expectation both models revealed a negative, but quite moderate direct relation between these constructs (-.31 and -.29, respectively). However, the analysis of Model 2 also revealed a moderate indirect relation (-.44) in addition to the direct relation. Thus, in this model the total relation between job satisfaction and motivation was strong. Interpreted in causal terms this result shows that job satisfaction is very important for principals' motivation to stay in the position, but that the impact of job satisfaction partly may be mediated through other variables such as burnout. However, this is merely a speculation and one should be careful not to draw firm conclusions in causal terms. Longitudinal studies aimed at analyzing causal relations between the variables are therefore called for in future research.

The association between self-efficacy and motivation to quit as principal is very interesting. The indirect relation between principal self-efficacy and motivation to quit the job was large and negative in both Model 1 and 2 (-.619 and -.631, respectively). These indirect relations were in the models mediated through burnout and job satisfaction. Similar relations are found in other studies (e.g. Chen & Scannapieco, 2010) and may indicate that self-efficacy has a preventive effect on the motivation to quit the job. In contrast, an unexpected finding in both models was a moderate but positive direct relation between self-efficacy and motivation to leave the position as principal (.224 and .235 in Model 1 and 2, respectively). A possible explanation may be that principals with high self-efficacy perceive changing the line of work as an opportunity and as a challenge to a greater extent than principals with lower self-

efficacy. In contrast, principals with lower levels of self-efficacy may be more uncertain that they will manage a new line of work and perceive this as more risky. As pointed out by Bandura (1997) persons with low levels of self-efficacy tend to dwell more with impediments and their own perceived inadequacy. Our interpretation implies that self-efficacy relates to motivation to leave the position as school principal in two ways. Partly, high self-efficacy may lead to higher job satisfaction and lower levels of burnout which again increases the motivation to continue working as a principal. At the same time high levels of self-efficacy may strengthen the belief that one may succeed in other lines of work and therefore increase the motivation to leave the position. These contradictory psychological processes may also explain the relatively moderate correlation between self-efficacy and motivation to quit as principal ($r = .40$). Explained in causal terms the two opposite effects tends to equal each other out, even if the negative relation was the strongest in this study.

Taken together, the results indicate that self-efficacy, burnout and job satisfaction have implications for principals' motivation to quit. However, previous studies of teachers have revealed that motivation to quit is not the same as actual quitting behavior (Dworkin, 1987; LeCompte & Dworkin, 1991). Based on these studies one may speculate that similar conditions are prevailing for principals as well. One may assume that principals who experience burnout and dissatisfaction want to leave their jobs. However, without alternative sources of employment, lack of necessary self-efficacy and external locus of control, they may stay in their jobs long after their enthusiasm has diminished. Future research should therefore investigate the relation between motivation to quit and actual quitting by means of longitudinal studies.

This study indicates the importance of principals' self-efficacy for both burnout and job satisfaction and shows how these concepts relate to principals' motivation to quit the job. Given the responsibility of school principals for students' education and well- being at school,

it is therefore important that school principals develop high levels of competency as well as self-efficacy. Norwegian principals' work is often described as demanding and unpredictable, partly because the curriculum and educational policy often is subject to change. Such work environments require principals to be updated at any time in order to act efficacious. Self-efficacy contributes positively to this functioning, because it affects performance of the principals' through mechanisms like choice, effort and perseverance. Increasing principals' self-efficacy is therefore an important objective for those responsible for improving the quality of leadership in schools. Moreover, to provide self-efficacy is in our view an important goal in education of school principals. For instance, inexperienced principals could participate in mentoring programs developed to provide the necessary efficacy beliefs for optimal functioning.

This study has several limitations. The collected data is constituted by self-reporting measures and we have no measure of the extent to which these self-reports accurately reflect the variables under study. Also, the concepts used in this study do not operate in isolation from other psychological determinants that may affect principals' motivation and performance. Other constructs should be explored in relation to those included in this study. Future research should investigate the causal relations between self-efficacy, burnout and job satisfaction by means of longitudinal studies since the cross-sectional design precludes any definite conclusion about causality. Future research should combine self-report data with data obtained in a more objective matter. We should also note that the Norwegian Principal Self-Efficacy Scale is yet not tested in other cultures than the Norwegian. We consider that the eight dimensions constituting the NPSES could apply to all principals, but future research should verify the factor structure of the instrument in different contexts and cultures. It should also be examined whether other factors should be included in the instrument.

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Appendix A

Measurement model: NPSES

In the present study the second order model of the NPSES was of primary interest. We therefore tested a model specifying eight primary factors and one second order factor underlying the primary factors. None of the error variances in the model were allowed to correlate. The theoretical model is presented in Figure A1.

Please insert Figure A1 here

The model had acceptable fit to data ($\chi 2$ (244, N = 1685) = 1876.29, p < .001, CMIN/DF = 7.690, RMSEA = 0.063, IFI = 0.929, TLI = 0.913, and CFI = 0.929). All regression weights in the model were significant at p < .001. The result from the confirmatory factor analysis verify that principal self-efficacy is a hierarchal and multidimensional construct constituted by a more general experience of self-efficacy.

Measurement model: Burnout

Based on theory and previous research one model of the MBI was tested to investigate the factor structure. The model was comprised of three first order factors and one second order factor. The result from the CFA is presented in Table A1.

Please insert Table A1 here

The model did not have acceptable fit to data. This was somewhat unexpected with regard to theory and previous research. The problem may have occurred during the translation from English to Norwegian and in the adaptation of the instrument to principals. Norwegian researchers have reported similar problems with this instrument when adapting the MBI to teachers (see Skaalvik & Skaalvik, 2009, 2010). Further analyses therefore focused on

reducing the number of items through exploratory factor analyses (EFA) to investigate whether the three predicted dimensions actually would appear. Results from EFA using Principal components with Varimax rotation indicated that a fewer number of items on the subscales probably would contribute to a more parsimonious model. After item reduction the analysis revealed three factors with eigenvalues greater than 1. An inspection of the scatterplot also supported the three factor solution. These factors explained 70.5% of the variance in the equation. All items loaded higher than .72 on their respective factor and less than .3 on the remaining factors. The reduced instrument distributed the items in the same pattern as the MBI (the three core dimensions). Factor loadings and Cronbach's alphas for the dimensions are presented in Table A2.

Please insert Table A2 here

Based on the results from the EFA a modified model of the MBI was tested by means of CFA. The model was comprised of three first order factors and one second order factor. None of the error variances in the model were allowed to correlate. The theoretical model is shown in Figure A2.

Please insert Figure A2 here

The model had acceptable fit to data ($\chi 2$ (49, N = 1685) = 285.115, $p < .001$, CMIN/DF = 5.819, RMSEA = 0.053, IFI = 0.975, TLI = 0.960, and CFI = 0.975). The result from the confirmatory factor analysis shows that the modified instrument constitutes a more parsimonious model.

Measurement model: Job satisfaction

One theoretical model was tested to investigate the factor structure of job satisfaction. The model defined job satisfaction in terms of one first order factor with loadings on all the five observed items. None of the error variances in the model were allowed to correlate.

The model had good fit to data ($\chi 2$ (3, N = 1685) = 6.344, p = .096, CMIN/DF = 2.115, RMSEA = 0.026, IFI = 0.999, TLI = 0.997, and CFI = 0.999). All regression weights in the model were significant at $p < .001$. Results from the confirmatory factor analysis verify that job satisfaction in this case can be regarded as a latent construct comprised of five items.

Appendix B

The 24 items of the Norwegian Principal Self-Efficacy Scale (NPSES)

How certain are you that you can:

Instructional leadership:
…develop this school's instructional platform.
…initiate, plan and carry out instructional development.

Economic management
…keep track of the school's finances.
…have a constant overview of the school's financial situation.
…be sure that the finances of the school are under control.

Administrative management
…follow up and implement all decisions taken.
…have an ongoing evaluation of all activities at school and follow these up.
…always use your management prerogatives in relation to your employees in a constructive manner.
…facilitate work conditions for your staff in such a way that the work can be done constructively.

Teacher support
…support and assist teachers with challenges or problems.
…attend to and support teachers who are struggling with strain or exhaustion.

Parental relations
…collaborate with the parents' representatives.
…develop a good cooperation between school and home.

School environment

…develop a school in which all teachers experience well-being.

…engage your employees in their professional development.

…develop a good psychosocial environment for the pupils.

…engage the pupils to take responsibility to make the school a better place to learn.

…develop a school that is open and welcoming to the pupils.

Relation to municipal authority

…promote the school's needs to the municipal authority.

…get the municipal authority to change their opinion if I disagree.

…collaborate with the municipal authority about future directions for the school.

Relation to local community

…use resources in the community (people and areas).

…ensure that the school has contact with various groups and institutions in the community.

…maintain contact and cooperate with local businesses.

Table 1
Zero order correlations and descriptive statistics.

Variable	1	2	3	4	5	6	7	8	9	10
[a]1. Self-efficacy	-									
2. Emotional exhaustion	-.396**	-								
3. Depersonalization	-.327**	.511**	-							
4. Personal accomplishment	.395**	-.260**	-.237**	-						
5. Job satisfaction	.494**	-.544**	-.305**	.475**	-					
6. Motivation to quit	-.321**	.496**	.309**	-.284**	-.605**	-				
7. Age	.030	-.062*	-.116**	-.064*	-.053**	-.039	-			
8. Age females	.020	-.063	-.096**	-.041	-.009	-.069*	-	-		
9. Age males	.050	-.064	-.143**	-.078*	-.087*	-.023	-	-	-	
10. Managing experience	.026	-.040	-.077**	-.041	.003	.000	.618**	.611**	.631**	-
Maximum possible score	168	49	14	21	30	12	70	70	70	40
Number of items	24	7	2	3	5	2	-	-	-	-
Mean	119.5	21.3	3.6	16.9	22.8	4.2	52.0	51.7	52.4	11.5
Standard deviation	16.8	8.7	2.3	2.8	4.2	2.1	8.4	8.0	8.8	7.9
Cronbach's alpha	.93	.91	.81	.79	.91	.84	-	-	-	-

Note. ** $p < .01$, * $p < .05$
[a]Self-efficacy = sum scale consisting of the 24 items constituting the NPSES.

Table 2
Correlations between the latent variables.

Latent variable	1	2	3	4
1 Motivation to quit	-			
2 Principal self-efficacy	-.396***	-		
3 Job satisfaction	-.711***	.588***	-	
4 Burnout	.738***	-.702***	-.852***	-

Note. *** $p < .001$. Note that the correlation matrix is different from Table 1 because both principal self-efficacy and burnout is treated as latent second order factors. Also, SEM analysis handles measurement errors more efficiently than zero order correlations, so the relations are somewhat stronger than the correlations shown in Table 1.

Table 3
Regression weights between the latent variables in structural Model 1.

Latent variable	Unstandardized factor loadings	Standardized factor loadings	SE	R^2
Motivation to quit				.595
Principal self-efficacy	.211***	.224	.037	
Burnout	.662***	.630	.105	
Job satisfaction	-.313***	-.310	.074	
Job satisfaction				.717
Burnout	-.883***	-.847	.039	
Burnout				.484
Principal self-efficacy	-.621***	-.696	.030	

Note. *** $p < .001$

Table 4
Regression weights between the latent variables in structural Model 2.

Latent variable	Unstandardized factor loadings	Standardized factor loadings	SE	R^2
Motivation to quit				.598
Principal self-efficacy	.220***	.235	.047	
Burnout	.691***	.654	.139	
Job satisfaction	-.295***	-.293	.094	
Burnout				.787
Job satisfaction	-.641***	-.671	.035	
Principal self-efficacy	-.273***	-.307	.029	
Job satisfaction				.345
Principal self-efficacy	.547***	.588	.023	

Note. *** $p < .001$

Table 5
Standardized total and indirect effects between the latent variables in Model 1.

Latent variable	[a]Total effect	[b]Total effect	SE	[a]Indirect effect	[b]Indirect effect	SE
Motivation to quit						
Principal self-efficacy	-.397	-.400**	.028	-.619	-.631**	.044
Burnout	.892	.903**	.047	.260	.248**	.070
Job satisfaction						
Principal self-efficacy	.589	.594**	.021	.589	.594**	.021

Note. ** $p < .01$
[a]Results based on the original dataset.
[b]Results based on the EM imputed dataset using bootstrap (2000 samples).

Table 6
Standardized total and indirect effects between the latent variables in Model 2.

Latent variable	[a]Total effect	[b]Total effect	SE	[a]Indirect effect	[b]Indirect effect	SE
Motivation to quit						
Principal self-efficacy	-.396	-.399**	.028	-.631	-.660**	.084
Job satisfaction	-.731	-.731**	.028	-.439	-.494**	.154
Burnout						
Principal self-efficacy	-.702	-.714**	.030	-.394	-.399**	.024

Note. ** $p < .01$
[a]Results based on the original dataset.
[b]Results based on the EM imputed dataset using bootstrap (2000 samples).

Table A1
Results from CFA of the MBI.

Description	X^2	DF	CMIN/DF	RMSEA	IFI	TLI	CFI
Second order model MBI	2424.165	206	5.863	0.077	0.847	0.811	0.846

Table A2
Component loadings for Principal Component Analysis with Varimax Rotation

Variable	Factors 1[a]	2[b]	3[c]
Emotional exhaustion 1	.846		
Emotional exhaustion 2	.842		
Emotional exhaustion 3	.833		
Emotional exhaustion 4	.789		
Emotional exhaustion 5	.774		
Emotional exhaustion 6	.724		
Emotional exhaustion 7	.723		
Depersonalization 1		.903	
Depersonalization 2		.866	
Personal accomplishment 1			.843
Personal accomplishment 2			.826
Personal accomplishment 3			.823
Cronbach's α	.910	.807	.793

Note. $N = 1484$. Values below .3 are suppressed.
[a]Emotional exhaustion. [b]Depersonalization. [c]Personal accomplishment.

Figure caption:

Fig 1 Hypothesized structural model of the relations between principal self-efficacy, burnout, job satisfaction and thoughts about leaving the job for Model 1

[a]Economy [b]Instructional leadership [c]Parental relations [d]Municipal authority [e]Administrative management [f]Teacher support [g]Relation local community [h]School environment

Fig 2 Hypothesized structural model of the relations between principal self-efficacy, burnout, job satisfaction and thoughts about leaving the job for Model 2

[a]Economy [b]Instructional leadership [c]Parental relations [d]Municipal authority [e]Administrative management [f]Teacher support [g]Relation local community [h]School environment

Fig A1 The hypothesized model of the NPSES

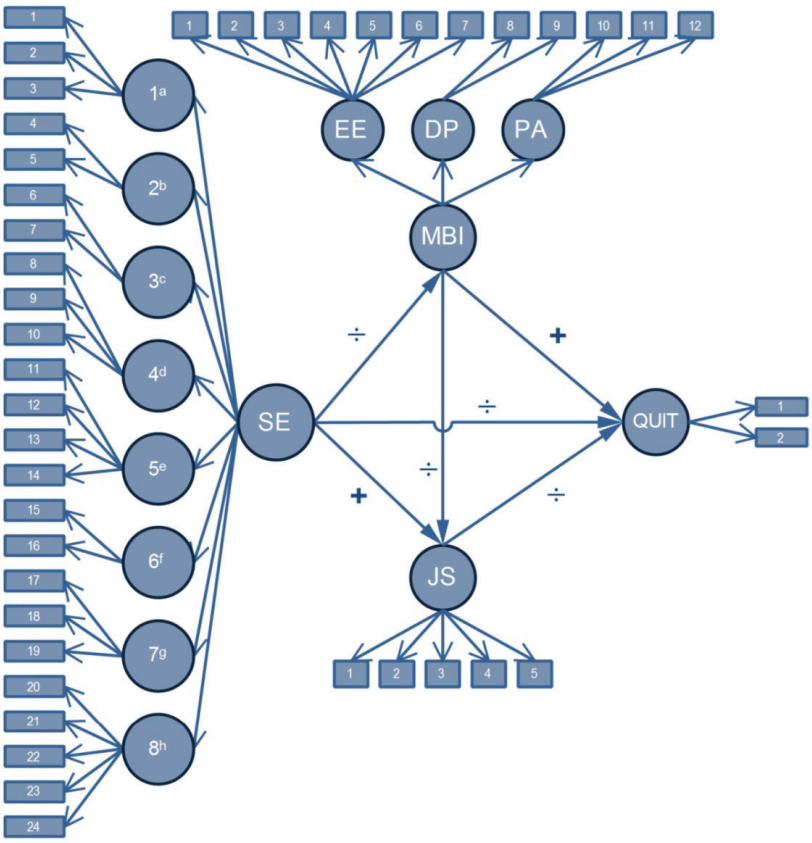
[a]Economy [b]Instructional leadership [c]Parental relations [d]Municipal authority [e]Administrative management [f]Teacher support [g]Relation local community [h]School environment

Fig A2 The hypothesized model of the MBI.

EE – emotional exhaustion

DP – Depersonalization

PA – Personal accomplishment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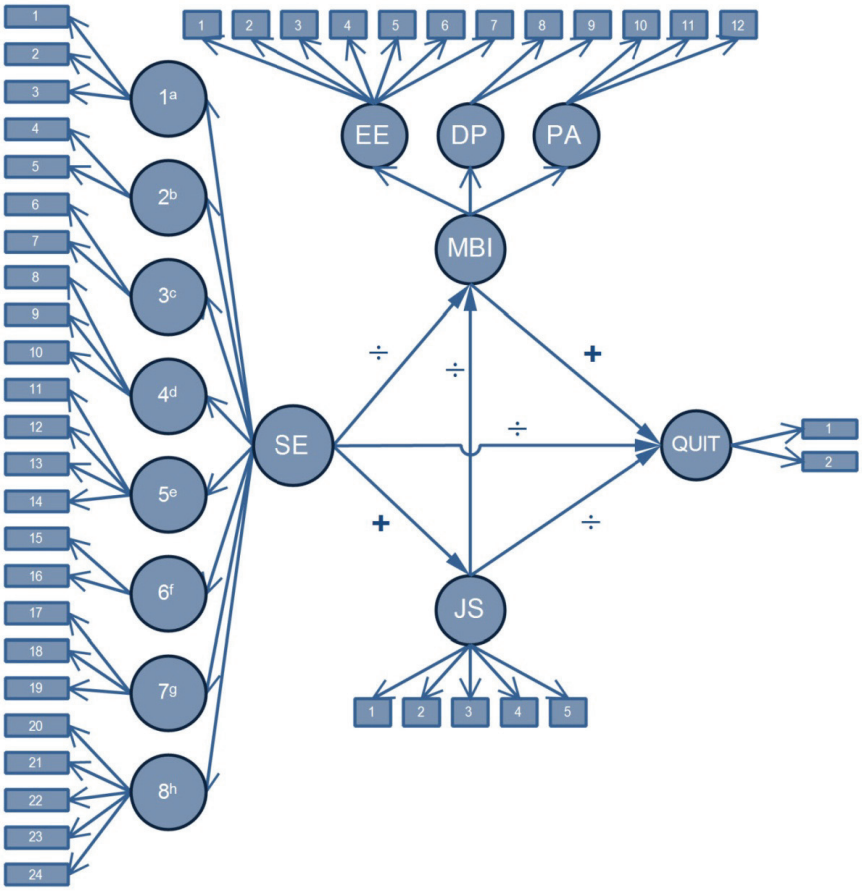
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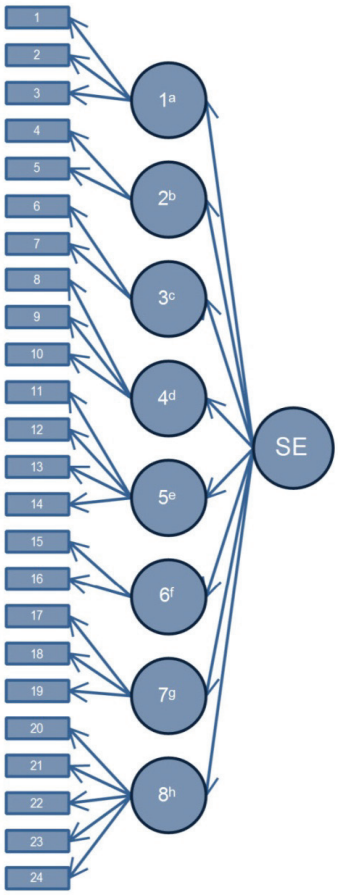
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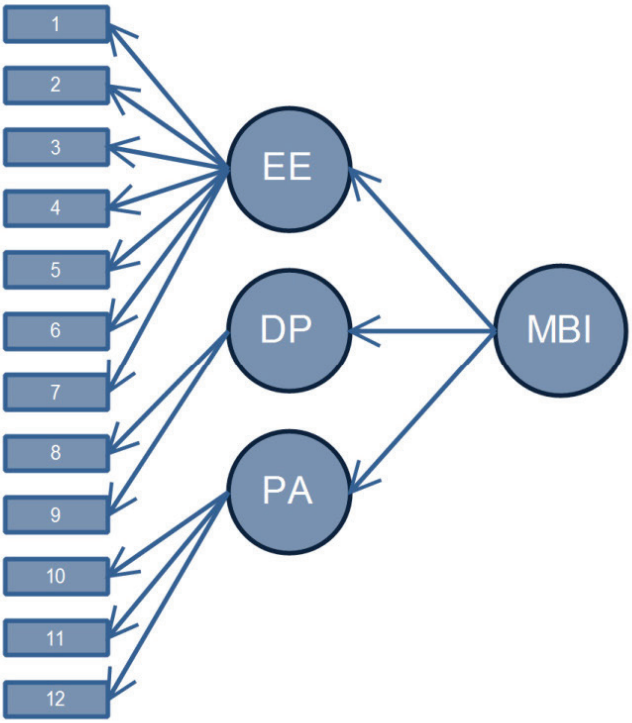
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PAPER 3

Principal Self-Efficacy:

Relations with Job Autonomy, Job Satisfaction and Contextual Constraints

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Abstract

The purpose of the present study was to explore relations between principals' self-efficacy, perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy. Principal self-efficacy was measured by a multidimensional scale called the Norwegian Principal Self-Efficacy Scale. Job autonomy, job satisfaction, and contextual constraints to autonomy were measured by three scales developed for the purpose of this study. Perceived contextual constraints to autonomy were comprised of *financial and administrative* constraints, *employee participation*, *municipal authority* and *national evaluation programs*. Participants in the study were 1818 principals from the population of Norwegian principals. Data was collected by means of an electronic questionnaire. A theoretical model was tested by means of SEM analysis for latent variables using the AMOS 18 program. The model had acceptable fit to data. The results revealed a positive relation between principal self-efficacy and perceived job autonomy. Principal self-efficacy and perceived job autonomy was positively related to job satisfaction and negatively related to contextual constraints. Contextual constraints to autonomy were negatively related to job satisfaction. The present study highlights important relations between principals' self-efficacy, perceived job autonomy, job satisfaction and contextual constraints to autonomy. The results of the study are discussed together with limitations and suggestions for further research.

Keywords: Autonomy, self-efficacy, job satisfaction, constraints, leadership, SEM.

Introduction

A vast number of studies have revealed a strong positive relation between self-efficacy and performance (Bandura 1977, 1997, 2006). Self-efficacy influences how people think, feel, motivate themselves, and act. Bandura (1997) defines self-efficacy as people's judgments of their capabilities to organize and execute the courses of action required to attain designated types of performances. Self-efficacy is the individual's belief about what he or she can achieve in a given context, and influences cognitions and emotions, choices of action, how much effort is expended on an activity, and how long people will persevere when confronted with obstacles (Pajares 1997; Bandura 1997).

The number of studies focusing on self-efficacy in educational contexts has increased significantly during the past few decades. The studies primarily concern student self-efficacy, teacher self-efficacy, collective teacher self-efficacy and principal self-efficacy. For instance, research indicates that teacher's self-efficacy predicts student motivation and achievement (e.g. Ashton and Webb 1986; Hoy and Davis 2005; Muijs and Reynolds 2002). Moreover, teacher self-efficacy is related to their goals, aspirations, job satisfaction, and tendencies towards burnout (e.g. Skaalvik and Skaalvik 2007, 2009, 2010). Less attention has been given to principals' self-efficacy, although the number of studies is increasing. However, the available research indicates that principals' efficacy beliefs are associated with adaptive functioning. For instance, research has shown that that principals with high efficacy beliefs experience higher levels of work engagement and lower levels of burnout and work alienation (Federici and Skaalvik 2011a, 2011b; Tschannen-Moran and Gareis 2005).

As pointed out above, self-efficacy influences individuals' cognitions and emotions. According to Bandura (1997) self-efficacy also affects how environmental opportunities and impediments are perceived. The purpose of the present study was therefore to explore how principals' self-efficacy relates to their perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy. By means of structural equation modeling a

theoretical model was tested to investigate how principals' self-efficacy predicts these constructs.

Self-efficacy

Self-efficacy is grounded in Bandura's social cognitive theory – a theory that emphasizes the evolvement and exercise of human agency. Human agency is an idea that people can exercise some influence over what they do (Bandura 1977, 1997, 2006). People are viewed as self-organizing, proactive, self-reflective and self-regulated, rather than as reactive organisms shaped by their environment (Bandura 1986, 2006). According to Bandura (2006), no mechanism of human agency is more central and pervasive than self-efficacy because unless people believe they can produce desired outcomes by their actions, they have little incentive to act or to persevere in the face of difficulties.

Self-efficacy is the individual's future-oriented belief about what he or she can achieve in a given context. Perceived self-efficacy influences decisions of behavior in which cognitive, motivational, affective and selective processes work to transform the individual's self-efficacy into action (Bandura 1997). High self-efficacy promotes positive perceptions of one's own capabilities. Individuals with high self-efficacy usually set challenging goals for themselves and strive to achieve these by making and maintaining an effort (Bandura 1994, 1997). Failures are attributed to lack of effort or knowledge, though the latter can be acquired (Bandura 1986, 1994, 1997). Individuals with low self-efficacy tend to withdraw from activities that are perceived as threatening or challenging. In the face of difficulties they focus on obstacles that will arise, and typically reduce their effort and give up quickly (Bandura 1986, 1994, 1997; Pajares 1997, 2002).

Principal self-efficacy

According to McCormick (2001) self-efficacy is as a key cognitive variable regulating leader functioning in dynamic environments (McCormick 2001). Also, research on leadership

efficacy indicates that positive efficacy beliefs is important to leaders' success because it determines the effort and persistence on a particular task as well as the aspirations and goals they set (Gist and Mitchell 1992; Bandura 1997). Moreover, a study by Chemers, Watson and May (2000) indicates that leaders' self-efficacy is important because it affect attitudes and performance of their followers (Chemers et al. 2000).

Some studies have been conducted to investigate principal self-efficacy. The majority of these are based on Bandura's definition of self-efficacy and has partly focused on the structure of the construct and partly on how it relates to other concepts. Despite different approaches previous studies indicate that principals' self-efficacy is associated with adaptive functioning. For instance, according to Osterman and Sullivan (1996) efficacious principals tend to be more persistent in pursuing goals and are more adaptable to change (Osterman and Sullivan 1996). Licklider and Niska (1993) found that principals' level of self-efficacy is associated with the quality of supervision of teachers (Licklider and Niska 1993). Dimmock and Hattie (1996) found efficacy to be a valued element for principals in a school restructuring process (Dimmock and Hattie 1996). Moreover, W. Smith, Guarino, Strom and Adams (2006) concluded that the quality of teaching and learning is influenced by the principals' efficacy (W. Smith et al. 2006). Finally, Lyons and Murphy (1994) found that inefficacious principals tend to use external power sources as the rights of management to force others into desired actions where efficacious principals use internal based power sources to lead and set examples for others to follow (Lyons and Murphy 1994).

Job autonomy

According to Dysvik and Kuvaas (2011) job autonomy is an essential tenet in both work design theories and theories of motivation (Dysvik and Kuvaas 2011; Gagne and Deci 2005; Humphrey et al. 2007). Job autonomy may be conceptualized as the extent to which a

job allows freedom, independence, and discretion to schedule work, make decisions and choose among methods to perform tasks (Dysvik and Kuvaas 2011; Humphrey et al. 2007).

A meta-analysis by Humphrey et al. (2007) provides compelling evidence that perceived job autonomy is positively related to performance, job satisfaction, commitment, and intrinsic motivation whereas negatively related to absenteeism, stress, and burnout (Humphrey et al. 2007). Research on individual and team autonomy indicates a positive relation between perceived job autonomy and self-efficacy (e.g. van Mierlo et al. 2006; Wang and Netemeyer 2002). Increased employee control is also associated with increased employee motivation, with respect to increased task mastery and seeking out novel challenges (Morgeson et al. 2005). Such findings are also supported by self-determination theory (SDT) (Deci and Ryan 2000; Gagne and Deci 2005). SDT proposes that satisfaction of the need for autonomy is essential for the emergence and sustainment of intrinsic motivation. According to Gagne and Deci (2005) perceived job autonomy influences a range of employee outcomes, as intrinsic motivation and work performance.

Principals' perceived autonomy may be influenced by both personal and environmental factors. According to self-determination theory the social environment influences the extent to which individuals perceive themselves as autonomous or controlled (see Black and Deci 2000). However, one may also assume that perceived job autonomy is to some extent influenced by principals' self-efficacy. As noted above, self-efficacy determines how environmental opportunities and impediments are perceived by the individual. For instance, principals with high efficacy beliefs may experience greater latitude in their work. Thus, the relation between efficacy beliefs and perceived job autonomy is expected to be positive.

Job satisfaction

Job satisfaction may be regarded as the positive or negative evaluative judgments people make about their jobs (Weiss 2002). A frequently cited definition of job satisfaction is the one proposed by Locke (1976) who defined job satisfaction as a pleasurable or positive emotional state resulting from the appraisal of one's job (Locke 1976). Similar definitions have been proposed by other researchers (e.g. P. Smith et al. 1969; Schultz 1982; Cranny et al. 1992) indicating a consensus that job satisfaction is an affective orientation towards one's job (Newby 1999). Job satisfaction may manifest itself both as a global feeling towards one's work and as separated attitudes about various aspects or facets of the job. However, there may be a problem when measuring facets and letting them indicate overall job satisfaction because such measures may overlook the fact that the impact of different facets on overall job satisfaction is dependent on how important each of the facets are for the individual. In the present study job satisfaction is therefore measured as an overall concept.

Previous studies of different occupations indicate that job satisfaction is positively related to both self-efficacy (e.g. Judge et al. 2001; Klassen and Chiu 2010) and autonomy (e.g. Rooney et al. 2009; Yang 2010). Job satisfaction is also related to work-related motivation, well-being, job content, absenteeism, and turnover intentions (e.g. Chen and Scannapieco 2010; Tzeng 2002; Weisberg and Sagie 1999; Rooney et al. 2009; Vidal et al. 2007; Yang 2010).

According to Bandura (1997) high self-efficacy promotes positive perceptions of one's own capabilities. High self-efficacy reduces stress and is associated with overcoming environmental obstacles. One may assume that individuals who believe in their abilities and competence to perform a job will be more satisfied in it. Hence, it is expected that principals' self-efficacy will be positively related to job satisfaction both directly and through perceived job autonomy. Also, the experience of autonomy is associated with increased employee

motivation and performance, thus perceived job autonomy should be positively related to job satisfaction.

Contextual constraints to autonomy

Perceived contextual constraints to autonomy are defined as contextual elements that may restrict the principals' perceived latitude in their exercise of school leadership. In the present study the contextual constraints comprises of financial and administrative constraints, employee participation, municipal authority and national evaluation programs. Previous studies of teachers have shown that similar contextual constraints (e.g. time constraints, administrative pressure, the curriculum and evaluation) are negatively related to the teachers' experience of autonomy, self-efficacy, and well-being (e.g. Pelletier et al. 2002; Pelletier and Sharp 2009; Taylor et al. 2008; Leroy et al. 2007).

Principals' perceived self-efficacy may affect their perceptions of the contextual constraints. According to Wood and Bandura (1989) individuals' belief systems regarding how controllable an environment is may exert a substantial impact on how to deal with it. Wood and Bandura (1989) point out two aspects that are especially relevant. The first concerns the level of self-efficacy needed to effect changes through effort and the use of capabilities and resources, whereas the second aspect concerns how changeable or how controllable an environment actual is. These two aspects represent the level of constraints and opportunities that are available to exercise personal efficacy. Individuals who believe they are inefficacious are likely to conduct limited change, even in environments that provide potential opportunities. Conversely, individuals who have high self-efficacy will through ingenuity and perseverance figure out ways of exercising control, even in environments that contain limited opportunities and many constraints (Wood and Bandura 1989). Thus, the relation between principals' self-efficacy and contextual constraints to autonomy is expected to be negative.

The contextual constraints to autonomy may be associated with the conceptualization of autonomous and controlling contexts (see Black and Deci 2000). Principals who perceive the contextual constraints to autonomy as controlling may experience these factors as being pressured by external demands. Such experiences may in turn contribute to reduce perceived job autonomy (Black and Deci 2000). Thus, one may assume that perceived contextual constraints to autonomy will be negatively related to perceived job autonomy.

Finally, the contextual constraints are assumed to be negatively related to job satisfaction. Impositions and environmental obstacles decreasing principals' latitude should theoretically contribute to job dissatisfaction.

The present study

The purpose of the present study was to explore relations between principals' self-efficacy, perceived job autonomy, job satisfaction and perceived contextual constraints to autonomy. The initial analysis consisted of a confirmatory factor analysis (CFA) to test a measurement model of the four separate but correlated constructs. One model of relations between the four constructs where then tested by means of structural equation modeling (SEM). The model defined principal self-efficacy as the exogenous variable and perceived job autonomy, job satisfaction, and contextual constraints to autonomy as endogenous. The theoretical model is presented in Figure 1.

Please insert Figure 1 about here

Method

Participants and procedure

Participants in the present study were principals of public and private elementary schools and middle schools (1^{st} - 10^{th} grade) in Norway. All principals of such schools in Norway were invited to participate. This amounts to approximately 2900 schools. 1818

principals responded to the survey. Data were collected using an electronic questionnaire. Information about the study and an invitation to participate was first distributed by mail to each of the respondents. Two weeks later, each respondent received a personal link to the survey which was sent by email.

The sample consisted of 47.1% males and 52.9% females. The age of the principals ranged from 29 to 70 years old. The mean age was 52 years. The average teaching experience before becoming a principal was 13.5 years and the average number of years of managing experience was 11.5. The sample consisted of principals from different school levels; 58.3% from elementary schools, 16.4% from middle schools and 23.1% from combined elementary and middle schools. The school size varied from 4 to 1300 pupils with an average of 215.

Instruments

All instruments in the present study were developed and administered in Norwegian. Examples of sample items represent translations from Norwegian into English.

Self-efficacy

Principals' self-efficacy was measured by a recently developed hierarchal and multidimensional Norwegian Principal Self-efficacy Scale (NPSES) (Federici and Skaalvik 2011a). The NPSES is constituted by eight dimensions with different numbers of items on each subscale. Each dimension covers different aspects of a principal's work. Federici and Skaalvik (2011a) found support both for the eight dimensions as well for a strong second order self-efficacy factor underlying the eight dimensions (for psychometric properties and the validation study, see Federici and Skaalvik 2011a). In the present study the second order model of the NPSES was of primary interest to explore how a general domain-specific experience of principal self-efficacy relates to the other concepts.

The NPSES consists of 24 items and measures principals' self-efficacy within the following dimensions: (1) Instructional leadership (two items), (2) economic management

(three items), (3) administrative management (four items), (4) teacher support (two items), (5) school environment (five items), (6) relation to municipal authority (three items), (7) parental relations (two items) and (8) relation to local community (three items). The dimensions are extensively described elsewhere (Federici and Skaalvik 2011a). Examples of items are: "How certain are you that you can keep track of the school's finances" (economic management)? and "How certain are you that you can collaborate with the municipal authority about future directions for the school" (municipal authority)? Responses were given on a 7-point scale ranging from "Not certain at all" (1) to "Absolutely certain" (7). Cronbach's alpha for the dimensions were .81, .91, .78, .77, .86, .74, .86, and .87 respectively.

Job autonomy

Perceived job autonomy was measured by a 3-item scale developed for the purpose of this study. In line with Humphrey et al. (2007) the measure was designed to capture the principals' experience of freedom, independence, and discretion to schedule work. The principals were asked to rate statements indicating their levels of perceived autonomy. The statements were: "At work, I am free to prioritize what I think is important", "In my position, I have freedom to work on what interests me" and "I feel that I have freedom to prioritize how to spend my time". Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for principals' perceived job autonomy was .85.

Job satisfaction

Principals' job satisfaction was measured by a 5-item scale developed for the purpose of this study. The measure focused on the principals' global feelings towards their work. The principals were asked to rate statements indicating their level of job satisfaction. The statements were: "I get inspired by my job", "I really enjoy being a principal", "As principal, I am in my element", "I like to be the head of school" and "When I get up in the morning I look

forward to going to work." Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for job satisfaction was .91.

Contextual constraints to autonomy

Perceived contextual constraints to autonomy were comprised of financial and administrative constraints, employee participation, municipal authority and national evaluation programs. These four areas of contextual constraints were identified through qualitative interviews with principals from different public elementary schools and middle schools (1^{st} - 10^{th} grade) from two Norwegian counties (see Federici and Skaalvik, 2011a for the pilot study). The contextual constraints were measured by an 8-item scale developed for the purpose of this study and the items were distributed equally on the four dimensions. The principals were asked to rate to what extent they thought these contextual elements restrict their latitude in their exercise of school leadership. Responses were given on a 6-point scale ranging from "Not at all" (1) to "Absolutely" (6).

Financial and administrative constraints concerns whether the principals experience that finances and lack of administrative resources restricts their latitude whereas e*mployee participation* focuses on the perceived restrictions that may arise from codetermination and trade unions. *Municipal authority* concerns whether the principals experience that the municipal authority and their contract of employment are perceived as restricting. Finally, *national evaluation programs* concerns whether the principals experience that the national evaluation programs restrict latitude. Cronbach's alpha for the dimensions were .65, .71, .59 and .88 respectively. Despite the low alpha value for two of the dimensions, they were retained on statistical bases. Both a first and second order confirmatory factor analysis supported the hypothesized model. In the present study the second order model was of primary interest to explore relations between a general experience of contextual constraints and the other concepts in the study.

Data analysis

The data were analyzed by means of confirmatory factor analysis (CFA) and structural equation modeling (SEM). These methods are powerful statistical tools for examining relations between latent constructs and tests a priori hypotheses regarding relations between observed and latent variables. The methodology takes a confirmatory approach to the analysis of data (Jackson et al. 2009; Byrne 2010).

CFA plays an essential role in evaluating the measurement model before a structural analysis is conducted. Structural analysis is then used for specifying and estimating models of linear relationships between both observed and latent variables (MacCallum and Austin 2000; Jackson et al. 2009). According to Jackson et al. (2009), challenges with SEM often occur because the measurement models of the structural analysis consist of issues that are not properly investigated. Measurement models should first be examined and it is essential that they reflect the desired constructs or factors under study.

The collected data constitute an empirical covariance matrix. This matrix is the foundation for structural equation modeling. When conducting SEM, the analysis produces an estimated population covariance matrix based on the model specified. A key element of SEM is to assess whether the model produces an estimated matrix that is consistent with the sample matrix (Tabachnick and Fidell 2007). This consistency is investigated through different measurement indices of goodness of fit. If the goodness of fit is adequate it supports the plausibility of the model specified. Different measures of fit are available and are assessed through indices such as CFI, IFI, TLI and RMSEA, as well as the chi square test-statistics. For the CFI, IFI and TLI indices, values greater than .90 are typically considered acceptable and values greater than .95 indicate a good fit to data (Byrne 2010; Hu and Bentler 1999). For well specified models, an RMSEA of .06 or less indicates a good fit (Hu and Bentler 1999)

Data was analyzed using the AMOS 18 software. Maximum likelihood estimation was employed to estimate all models based on their corresponding covariance matrix. Since AMOS 18 does not provide standard errors (SE) and confidence intervals (CI) for all estimates, a bootstrap analysis was performed to estimate approximate SE and CI for the total and indirect effects. The bootstrap method is a versatile method for estimating the sampling distribution of parameter estimates; however, it requires complete data (Arbuckle 2009; Byrne 2010). Some analyses therefore used an imputed data set. An Expectation Maximization (EM) imputation of missing data was conducted using PASW Statistics 18. It is reported when the EM imputed set is used and the results are compared with the findings from the original dataset.

Results

The measurement model

A confirmatory factor analysis was conducted to investigate the measurement model and consisted of principals' self-efficacy, perceived job autonomy, job satisfaction and contextual constraint to autonomy. None of the error variances in the model were allowed to correlate. The model had acceptable fit to data ($\chi 2$ (723, N = 1686) = 3496.6, p < .001, CMIN/DF = 4.835, RMSEA = 0.048, IFI = 0.925, TLI = 0.915, and CFI = 0.925). All regression weights in the model were significant at p < .001. The correlations between the latent constructs are presented in Table 1.

Please insert Table 1 about here

The results from the confirmatory factor analysis clearly support the conceptualization of four separate but correlated constructs. The correlations between the concepts are moderate.

The structural model

The structural model specifies principal self-efficacy as the exogenous variable and perceived job autonomy, job satisfaction and contextual constraints to autonomy as the endogenous variables. None of the error variances in the model were allowed to correlate. Initial analysis revealed that all regression weights between the latent constructs except one were significant at $p < .001$. The non-significant regression weight ($\beta = -.011$, $p = .725$) between perceived contextual constraints to autonomy and job satisfaction was therefore removed. The final model had an acceptable fit to data ($\chi 2$ (724, $N = 1686$) = 3496.18, $p <$ .001, CMIN/DF = 4.829, RMSEA = 0.048, IFI = 0.925, TLI = 0.915, and CFI = 0.925). Estimates of the standardized regression weights and squared multiple correlations for the latent variables are presented in Figure 2.

Please insert Figure 2 here

The result reveals that all the regression weights in the model are significant at $p <$ .001. Approximately 47 percent of the variation in principals' job satisfaction can be explained by the other variables in the model.

Total and indirect effects

Total and indirect effects between the constructs were estimated. These estimates were compared with estimates from a bootstrap analysis from the same sample (2000 samples) to determine whether these effects were significant. The bootstrap analysis is based on the EM imputed dataset. The results are presented in Table 2.

Please insert Table 2 about here

The analyses show that there are small differences in the estimates of total and indirect effects when comparing the results from the original dataset with the estimates provided from

the EM imputed dataset. A comparison of these values is also supported by the bias corrected confidence intervals (CI_{90}) provided from the bootstrap analysis which all contained the respective estimate from the original dataset. Results from these analyses reveal that all the direct and indirect effects between the variables are significant at $p < .001$.

Discussion

The result of the analysis is in accordance with previous findings of a positive relation between self-efficacy and perceived job autonomy, and demonstrates that this relation is positive for principals as well (e.g. Bandura 1997; van Mierlo et al. 2006; Wang and Netemeyer 2002). The results also support previous research (e.g. Judge et al. 2001; Klassen and Chiu 2010) revealing that both self-efficacy and perceived job autonomy was strongly related to job satisfaction. The contextual constraints to autonomy was negatively related to both perceived job autonomy and self-efficacy, but not directly related to job satisfaction. However, there was a moderate negative correlation (see Table 1) between contextual constraints to autonomy and job satisfaction, as well as a moderate negative indirect relation between the constructs. The indirect relation was mediated through perceived job autonomy.

A possible interpretation of the relation between self-efficacy and autonomy may be that self-efficacy contributes to the principals' perceived job autonomy. Social cognitive theory (Bandura 1997, 2006) proposes that self-efficacy influences how environmental opportunities and impediments are perceived. Efficacious principals may therefore use ingenuity and perseverance to plan means of exercising control and be capable of taking the steps needed to gain more autonomy. Principals with high mastery expectations may focus more on challenges and possibilities, while principals with lower mastery expectations focus more on impediments and obstacles. Hence, by focusing on possibilities rather than limitations, efficacious principals may perceive greater latitude, thereby increasing the feeling of having job autonomy.

The results revealed that self-efficacy and perceived job autonomy were positively related to job satisfaction. Previous studies have shown that employees who experience a large degree of control and latitude in their jobs report higher levels of job satisfaction and commitment to their work (e.g. Chen and Scannapieco 2010; Rooney et al. 2009). A possible interpretation of these relations may therefore be that principals who believe in their abilities and competence to perform a job and experience a great deal of latitude in their work will be more satisfied. Such principals may perceive that they possess control over their environment and are therefore more capable to cope successfully with their work. Such an assumption is supported by social cognitive theory which underscores that high self-efficacy contributes to reduce stress and increase engagement (Bandura 1977, 1986, 1997). Interpreted in general terms these results indicate that both self-efficacy and perceived job autonomy contribute independently to the principals' work-related motivation, commitment and well-being.

Self-efficacy and perceived job autonomy was negatively related to the contextual constraints to autonomy. According to Bandura (1997) high self-efficacy is associated with overcoming environmental obstacles. A possible interpretation may therefore be that efficacious principals are more likely to deal with contextual constraints because they do not perceive them as challenging or threatening. Supported by Wood and Bandura (1989), this may indicate that principals with high self-efficacy may find ways of exercising control in environments that contain limited opportunities and many constraints. Conversely, principals with low levels of self-efficacy may experience constraint as threatening and thus conduct limited change even in environments that provide potential opportunities. A possible interpretation of the relation between perceived job autonomy and the contextual constraints may be that principals who largely perceive the contextual constraints as restricting to their latitude also experience the constraints as an obstacle for their autonomy. As proposed by

self-determination theory (Gagne and Deci 2005) they may experience the contextual constraints as being pressured by external demands, decreasing their total latitude.

The association between contextual constraints to autonomy and job satisfaction is interesting. Theoretically, one might assume that the contextual constraints would decrease job satisfaction because contextual constraints may be experienced as restrictions or pressures in the principals' work environment. However, the structural model unexpectedly revealed a non-significant direct relation between the two concepts. Still, the results showed a small negative indirect relation which was mediated through perceived job autonomy. A possible interpretation may be that the contextual constraints do not directly affect the principals' job satisfaction because they do not perceive them as obstacles to their work-related well-being. On the other hand, when the constraints are experienced as threatening to job autonomy they have a negative impact on job satisfaction. This may indicate that self-efficacy and perceived job autonomy may serve as a buffer to hinder the negative experience of contextual constraints. Efficacious and autonomous principals may perceive the constraints to be less restricting for their latitude, which in turn prevents the contextual constraints to affect job satisfaction.

The findings from the present study may have both policy and practical implications. This study demonstrates the importance of principals' self-efficacy in relation to perceived job autonomy, job satisfaction and perceived contextual constraints to autonomy. Principals' with high self-efficacy are likely to experience more job autonomy under the same restrictions, compared to those with a weak sense of efficacy. Such principals also perceive State imposed constraints like evaluation systems and curricula as less constraining to their autonomy. Given the principals' responsibilities for both their teachers' work environment and students outcomes, they should therefore preferably perceive themselves as efficacious and autonomous in order to deal efficiently with different contextual constraints and work-related

tasks. Coping successfully will in turn contribute positively to their job satisfaction. Organizational control and impositions of too many tasks may have a negative impact on the principals' job autonomy and job satisfaction. The educational governance and the municipal authority should therefore limit the number of imposed tasks and provide principals with an autonomous framework where they have the possibility to develop high levels of competency. This concern is also an important goal in future education of school principals.

The present study has several limitations. One should note that the cross-sectional design precludes any definite conclusion about causality and that reciprocal relation between self-efficacy, job autonomy, job satisfaction, and contextual constraints to autonomy may exist. SEM analyses of different causal models containing the same constructs were conducted. These models specified the contextual constraints as the exogenous variable and turned the direction between self-efficacy and perceived job autonomy. The results revealed similar regression weights and goodness of fit indices as those presented in the present study. Longitudinal studies aimed at analyzing causal relations are therefore called for in future research. Also, the collected data is constituted by self-reporting measures and one do not know to witch extent these self-reports accurately reflect the variables under study. Future research should combine self-report data with data obtained in a more objective matter. In addition, the concepts used in this study do not operate in isolation from other psychological determinants that may affect principals' motivation and performance. Other constructs should be explored in relation to those included in this study. One should also note that the Norwegian Principal Self-Efficacy Scale is yet not tested in other cultures than the Norwegian. The eight dimensions constituting the NPSES are considered to apply to all principals, but future research should verify the factor structure of the instrument in different contexts and cultures. It should also be examined whether other factors should be included in the instrument.

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Table 1
Correlations between the four latent constructs in the measurement model.

Dimension	1	2	3	4
1. Perceived autonomy	-			
2. Principal self-efficacy	.412	-		
3. Job satisfaction	.594	.558	-	
4. Contextual constraints to autonomy	-.447	-.368	-.343	-

Note. All correlations are significant at $p < .001$.

Table 2
Standardized total and indirect effects between the latent variables in Model 3.

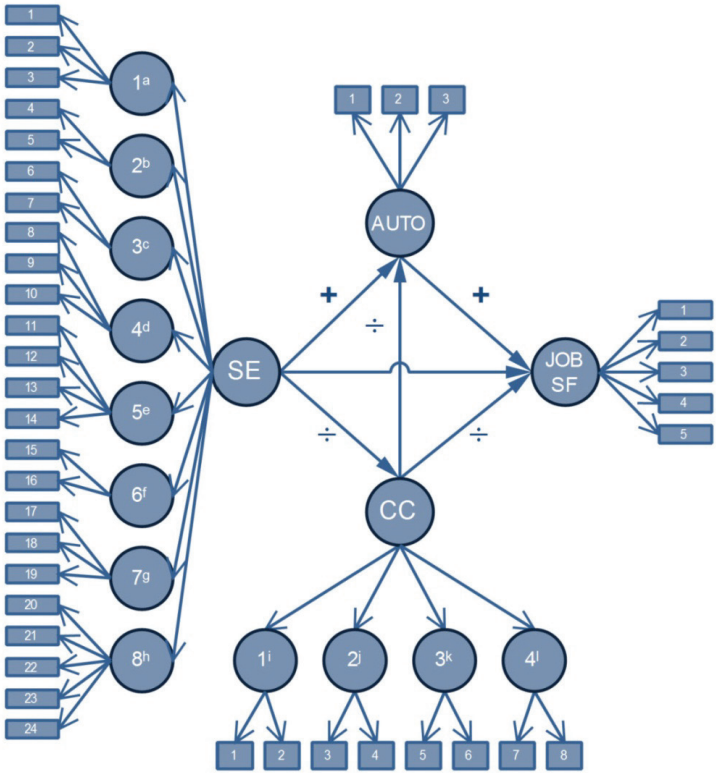
Latent variable	[a]Total effect	[b]Total effect	SE	[a]Indirect effect	[b]Indirect effect	SE
Job satisfaction						
Principal self-efficacy	.558	.558***	.021	.181	.181***	.015
Contextual constraints	-.151	.138***	.017	-.151	-.138***	.017
Perceived autonomy						
Principal self-efficacy	.412	.412***	.025	.126	.110***	.017

Note. *** $p < .001$
[a]Results based on the original dataset. [b]Results based on the EM imputed dataset using bootstrap (2000 samples).

Figure caption:

Figure 1: Theoretical model of the relations between principal self-efficacy, perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy in. [a]Economy [b]Instructional leadership [c]Parental relations [d]Municipal authority [e]Administrative management [f]Teacher support [g]Relation local community [h]School environment [i]Financial and administrative constraints [j]Employee participation [k]Municpal authority [l]National evaluation programs

Figure 2: Structural model of the relations between principal self-efficacy, perceived job autonomy, job satisfaction, and perceived contextual constraints to autonomy in. [a]Economy [b]Instructional leadership [c]Parental relations [d]Municipal authority [e]Administrative management [f]Teacher support [g]Relation local community [h]School environment [i]Financial and administrative constraints [j]Employee participation [k]Municpal authority [l]National evaluation programs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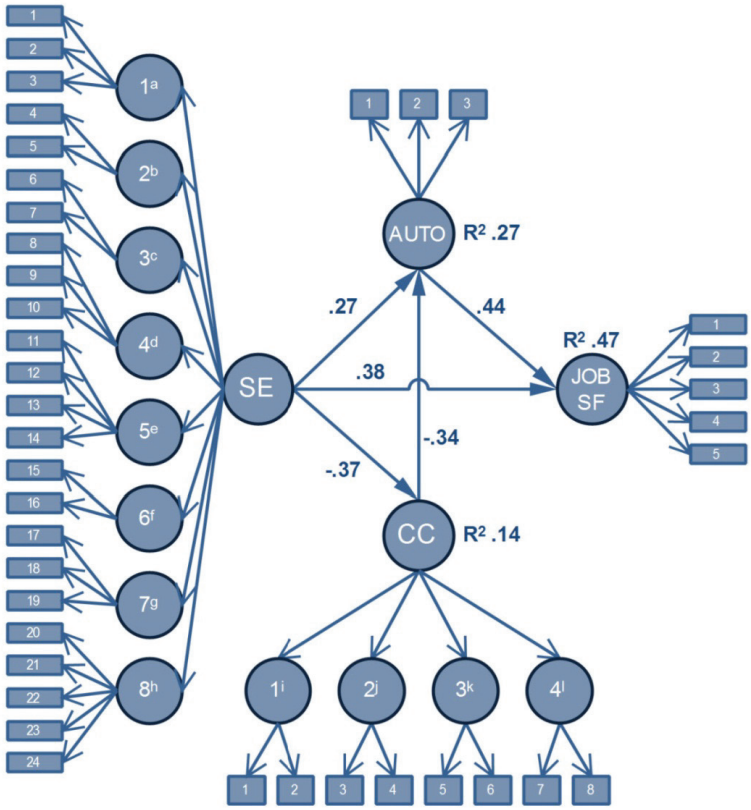
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PAPER 4

Running Head: Teacher and Principal Self-efficacy

Teacher and Principal Self-Efficacy: Relations with Autonomy and Emotional Exhaustion

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Abstract

This chapter investigates the relations between self-efficacy, autonomy, and emotional exhaustion among Norwegian school teachers and principals. Separate studies of both teachers and principals were conducted. The study of teachers also included perceived support from the school principal and job satisfaction, whereas the study of principals included the degree to which teachers were given autonomy. The participants in Study 1 were 2,569 teachers from 127 elementary schools and middle schools (1^{st} – 10^{th} grade), while the participants in Study 2 were 1,818 principals, also in elementary and middle school. The testing of two measurement models by means of confirmatory factor analysis showed acceptable fit to the data. SEM analyses revealed that both teacher and principal self-efficacy positively predicted perceived autonomy and negatively predicted emotional exhaustion. Additionally, Study 1 revealed that teacher self-efficacy was positively predicted by leadership support and that it was predictive of job satisfaction. Study 2 revealed that principals' self-efficacy predicted the amount of autonomy they gave to the teachers. The studies highlight important relations between self-efficacy, autonomy, emotional exhaustion, and job satisfaction.

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Introduction

Over 30 years of research has revealed a strong positive relation between self-efficacy and performance. Self-efficacy influences how people think, feel, motivate themselves, and act (Bandura, 1977, 1997, 2006c). The concept of self-efficacy is grounded in the theoretical framework of social cognitive theory, which emphasizes the evolution and exercise of human agency – the idea that people can exercise some influence over their lives (Bandura, 1977, 1986, 1997, 2006b). It is defined as people's judgments of their capabilities to organize and execute the courses of action required to attain designated types of performances (Bandura, 1977, 1986, 1997). Self-efficacy is the individual's belief about what he or she can achieve in a given context, and influences cognitions and emotions, choices of action, how much effort is expended on an activity, and how long people will persevere when confronted with obstacles (Bandura, 1997; Pajares, 1997).

Research on self-efficacy in educational contexts has received an increasing amount of attention over the past few decades. A vast number of studies have shown that students' academic self-efficacy is predictive of study behavior and academic outcomes (Maddux & Gosselin, 2003; Skaalvik & Bong, 2003). During the last decade, the research literature also documents a growing interest in teacher self-efficacy. For example, research on individual and collective teacher self-efficacy has shown that teacher's efficacy beliefs are related to their goals, aspirations, job satisfaction, and tendencies towards burnout, but also predict student motivation and achievement (Ashton & Webb, 1986; Hoy & Davis, 2005; Muijs & Reynolds, 2002; Skaalvik & Skaalvik, 2007, 2010). Less attention has been given to principals' self-efficacy, although the number of studies is increasing. The available studies indicate that principals' self-efficacy is associated with adaptive functioning. For instance, efficacious principals tend to be more persistent in pursuing goals and are more adaptable to

change (Osterman & Sullivan, 1996). Principals' self-efficacy is also related to the quality of the supervision of teachers (Licklider & Niska, 1993).

Based on previous research, we assume that teachers' and principals' perceived self-efficacy has implications for their work-related functioning. This chapter presents two empirical studies of teachers' (Study 1) and principals' (Study 2) self-efficacy, respectively. By means of structural equation modeling, both studies explore the relations between *self-efficacy, perceived autonomy* and *emotional exhaustion*. However, the two proposed structural models also include distinctive variables. In the study of teachers, the concept of *job satisfaction* and *perceived supervisory support* are included. In the study of principals, the principals' perceived *autonomy provided to teachers* is included.

Self-efficacy

Self-efficacy is defined as people's judgment of their capabilities to organize and execute the course of action required to attain designated types of performances (Bandura, 1986). It is the individual's future-oriented beliefs about what he or she can achieve in a given context. Self-efficacy is not a judgment about one's abilities. Past-oriented judgments of abilities are characteristics of self-concept (Bong & Skaalvik, 2003). Efficacy beliefs are regarded as multidimensional and context-specific (Zimmerman & Cleary, 2006), and Bandura (2006a) underscores that there is no all-purpose measure of self-efficacy beliefs (Bandura, 2006a).

Self-efficacy is a key element in Bandura's social cognitive theory (Bandura, 1977, 1986, 1997), which emphasizes the evolvement and exercise of human agency. Human agency is an idea that people can exercise some influence over what they do (Bandura, 1977, 1986, 1997). From this perspective, people are viewed as self-organizing, proactive, self-reflective and self-regulated, rather than as reactive organisms shaped by their environment (Pajares, 2002). Personal efficacy is a key resource in personal development, adaptation and

change, and impacts the courses of action that people pursue (Bandura, 1977, 1997, 2006b, 2006c). According to Bandura (2006b), no mechanism of human agency is more central and pervasive than self-efficacy. Unless people believe they can produce desired outcomes by their actions, they have little incentive to act or to persevere in the face of difficulties.

Perceived self-efficacy influences decisions on behavior in which cognitive, motivational, affective, and selective processes work to transform the individual's self-efficacy into action (Bandura, 2006b). Individuals' purposive behavior is often regulated by forethought that embodies valued goals. Through cognitive processes, self-efficacy affects whether individuals think optimistically or pessimistically, and also plays a key role in the self-regulation of motivation. According to Bandura (2006b), most human behavior is cognitively generated. People motivate themselves through the exercise of forethought in which they form beliefs about what they are able to do. In turn, such beliefs affect people's affective reactions because perceived self-efficacy to exercise control over stressors plays a central role in anxiety arousal (Bandura, 2006b, 2006c). Lastly, these beliefs affect how environmental opportunities and impediments are perceived. Personal efficacy can help shape the courses of people's lives by influencing the types of activities and environments in which people chose to engage (Bandura, 2006b, 2006c). Through choices, individuals can cultivate various competencies, interests, and social networks, which in turn determine their life courses.

Individuals with high self-efficacy usually set challenging goals for themselves and strive to achieve these by making and maintaining an effort (Bandura, 1994, 1997). Failures are attributed to a lack of effort or knowledge, though the latter can be acquired (Bandura, 1986, 1994, 1997). Individuals with low self-efficacy tend to withdraw from activities that are perceived as threatening or challenging. In the face of difficulties they focus on obstacles that

will arise, and typically reduce their effort and give up quickly (Bandura, 1986, 1994, 1997; Pajares, 1997, 2002).

The development of self-efficacy beliefs mainly occurs by obtaining information from four primary sources (Bandura, 1986, 1997; Pajares, 2002), with the most influential and efficient source being mastery experience. An outcome from an activity can be interpreted as a success or failure, in which the first increases self-efficacy, while the latter undermines it. These interpretations affect the development of personal efficacy beliefs that are important for future involvement in similar activities (Bandura, 1986, 1997; Pajares, 2002). The second source is vicarious experience. These experiences are observations that others', who are similar to oneself, are able or not able to perform a given task. This source of self-efficacy is particularly influential when people are uncertain of their own abilities or when they have little prior experience with the relevant activity (Pajares, 2002). Individuals' efficacy beliefs are also affected by the verbal persuasions they receive from others (Pajares, 2002). Through verbal persuasion individuals can become convinced that they possess the abilities required for a given action, which is most effective when those who convey the efficacy information are viewed as being competent and reliable (Bandura, 1997; Pajares, 2002). The final source of self-efficacy information is physiological, and involves emotional reactions such as anxiety, a fast heartbeat, sweating and fatigue. Such responses may be associated with prior failure and may send signals to people that affect their efficacy expectations in a given situation (Bandura, 1997; Pajares, 2002). According to Bandura (1994), it is the individuals' perception of the physiological and emotional reactions that are crucial, not the intensity of them. Such reactions can function as energizers of behavior or be experienced as an inability to participate in an activity.

Teacher Self-Efficacy

Historically speaking, two theoretical bases have been particularly emphasized to approach teacher self-efficacy. The first concerns Rotter's concept of the locus of control (Rotter, 1966). Based on his distinction between external and internal control, teacher self-efficacy has been assumed to increase if teachers believe that their students' achievement and behavior can be influenced by education (Guskey & Passaro, 1994; Rose & Medway, 1981a, 1981b). Teacher self-efficacy has therefore also been assumed to decrease if teachers believe that factors external to teaching (e.g. students' abilities and home environments) are more important to the students' learning than the influence that a teacher may exert.

A more recent approach is rooted in Bandura's social cognitive theory (Skaalvik & Skaalvik, 2007; Tschannen-Moran & Hoy, 2001). Within this perspective, teacher self-efficacy may be conceptualized as the individual teachers' beliefs in their own ability to plan, organize and carry out activities required to attain given educational goals. Previous research reveals that several instruments have been developed to measure teacher self-efficacy. However, many of these instruments either do not measure teacher self-efficacy as a multidimensional construct, do not reflect the variety of tasks and demands that are put upon a teacher, or do not follow Bandura's recommendation for item construction (for an overview, see Skaalvik & Skaalvik, 2007).

Despite differences in measures and item construction, teacher self-efficacy has been revealed to predict teachers' goals and aspirations (Muijs & Reynolds, 2002), teachers' attitudes towards innovation and change (Fuchs, Fuchs, & Bishop, 1992; Guskey, 1988), teachers' tendencies to refer difficult students to special education (Meijer & Foster, 1988; Soodak & Podell, 1993), teachers' use of teaching strategies (Allinder, 1995; Woolfolk, Rosoff, & Hoy, 1990), teacher burnout (Skaalvik & Skaalvik, 2010), and the likelihood that teachers stay in the teaching profession (Glickman & Tamashiro, 1982).

In the present study, we predicted that teachers' self-efficacy would be positively related to their feeling of autonomy and job satisfaction and negatively related to the emotional exhaustion dimension of teacher burnout (see self-determination theory, burnout, and job satisfaction).

Principal Self-Efficacy

Principal self-efficacy may be defined as the principals' judgments of their capabilities to plan, organize, and execute work-related tasks, as well as dealing with their relationships to people and institutions in their environment. Some studies have been conducted to investigate principal self-efficacy. The majority of these are based on Bandura's definition of self-efficacy, and have partly focused on the structure of the construct (Brama, 2004; Yusoff, 2006) and partly on how it relates to other concepts (Imants & De Brabander, 1996; W. Smith, 2003; Tschannen-Moran & Gareis, 2004, 2005).

Previous research has shown that principals with high efficacy beliefs experience higher levels of work engagement and job satisfaction, and lower levels of burnout and work alienation (Federici & Skaalvik, 2011a, 2011b; Tschannen-Moran & Gareis, 2004). Dimmock and Hattie (1996) found efficacy as a valued element for principals in a school restructuring process (Dimmock & Hattie, 1996), whereas Smith, Guarino, Strom and Adams (2006) concluded that the quality of teaching and learning is influenced by the principals' efficacy (W. Smith, Guarino, Strom, & Adams, 2006). Moreover, Lyons and Murphy (1994) found that inefficacious principals tend to use external power sources as rights of management to impose their decisions onto others to force them into taking desired actions, while efficacious principals use internal-based power sources to lead and set examples for others to follow (Lyons & Murphy, 1994). As was the case with teachers, we predicted that principals' self-efficacy would be positively related to their feeling of autonomy and negatively related to the emotional exhaustion dimension of principal burnout.

Self-Determination Theory

Self-determination theory explains motivation in terms of the development and functioning of individuals in social contexts in which interaction with others in a social network supports or constrains the natural tendencies toward active engagement and psychological growth (Rooney, Gottlieb, & Newby-Clark, 2009). Deci and Ryan (2000) argue for the existence of basic psychological needs which must be satisfied in an individual's environment in order to achieve personal growth and development (Deci & Ryan, 2000). These needs are considered universal across time, gender and culture. Individuals seek optimal stimulation and challenging activities because they have a basic need for (1) competence, (2) autonomy and (3) relatedness. The need for competence refers to the feeling of being competent and able to effectively deal with the environment. Autonomy refers to the feeling of control and the need to experience one's own actions as self-determined. Lastly, relatedness refers to the need to belong to a group, to be connected, and to experience caring by and for others (Deci & Ryan, 2000; Ryan & Deci, 2000, 2006; Schunk, Pintrich, & Meece, 2008).

Autonomy and Autonomy Support

What is most relevant for this chapter is the need for autonomy, i.e. whether the teachers and principals feel self-determined and perceive their actions to be self-driven. Self-determination theory proposes that motivated behavior varies according to whether it is experienced as autonomous or controlled (Black & Deci, 2000). Autonomous behavior has an internally perceived locus of control and is performed out of interest or personal importance (intrinsic motivation). Controlled behavior has an externally perceived locus of control and is experienced as being pressured by interpersonal contingencies or demands (extrinsic motivation) (Black & Deci, 2000).

According to Black and Deci (2000), intrinsically motivated behavior is the prototype of autonomy, while extrinsically motivated behavior is sustained because of an external contingency. Nevertheless, behaviors that are considered controlled can be internalized through a process of internalization; initially external regulations can be transformed to internal regulations (Black & Deci, 2000; Ryan & Deci, 2000). A vast number of studies indicate that the quality of experience and performance may be very different when individuals behave for intrinsic or extrinsic reasons (Ryan & Deci, 2000), and that extrinsic incentives and pressures can undermine motivation to perform even inherently interesting activities (Deci & Ryan, 2000; Eccles & Wigfield, 2002).

The social environment influences the extent to which individuals are autonomous vs. controlled. Self-determination theory proposes the concept of *autonomy support.* Autonomy support may occur when an employer acknowledges the feelings of the employees and takes their perspective. The employer should provide relevant information and opportunities, while minimizing the use of pressures and demands (Black & Deci, 2000; Deci & Ryan, 2000). According to self-determination theory, contexts that support autonomy tend to maintain or enhance intrinsic motivation. Such contexts also promote internalization. In contrast, controlling contexts tend to undermine intrinsic motivation and forestall internalization (Black & Deci, 2000).

Previous studies have demonstrated the benefits of self-determination. Research on various professions shows that employees report higher levels of intrinsic motivation, job satisfaction, and commitment to their jobs when their needs for competence, autonomy, and relatedness are satisfied (Chung-Yan, 2010; Koustelios, Karabatzaki, & Kousteliou, 2004; Rooney et al., 2009). Employees with supportive managers report higher levels of job satisfaction, organizational loyalty, and work-life balance (Rooney et al., 2009). Research on autonomy supportive vs. controlled environments also indicates that an autonomy supportive

climate fosters higher intrinsic motivation and supports the internalization process (Deci, Schwartz, Sheinman, & Ryan, 1981; Grolnick & Ryan, 1989).

Because autonomy is regarded as a basic psychological need that must be satisfied in an individual's environment in order to achieve personal growth and development, we expected that autonomy would be negatively related to emotional exhaustion among both teachers and principals. We also expected that autonomy would be predictive of job satisfaction, which was tested with teachers in Study 1. In Study 2, we also expected that principals who felt autonomous in their functioning would allow teachers to work more autonomously.

As noted above, the social environment influences the extent to which individuals are autonomous or controlled. However, we propose to some extent that the feeling of autonomy is influenced by the individual's self-efficacy. As noted by Bandura (2006b), self-efficacy determines how environmental opportunities and impediments are perceived by the individual. Given the same environmental restrictions, we therefore expected that both teachers and principals with high efficacy beliefs would perceive a higher degree of latitude and see more opportunities for self-determined choices. Thus, we expected a positive association between efficacy beliefs and perceived autonomy.

Burnout

The educational system is dynamic, and both teachers and principals need to cope with complex tasks and relations which are often subject to change. Complex and dynamic jobs involve exposure to a wide range of pressures, and employees in such positions are vulnerable to burnout (Allison, 1997; Whitaker, 1995). Although the reasons may differ, all teachers and principals may experience stress in their work. Nonetheless, most teachers and principals cope successfully with such stress, though burnout may be the endpoint of coping unsuccessfully with job-related stress.

According to Maslach (2003), burnout is a psychological syndrome that involves a prolonged negative response to stressors in the workplace (Maslach, 2003). Burnout is conceptualized as resulting from long-term occupational stress, particularly among workers who deal with other people in some capacity, for instance in healthcare, social services, or education (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Leiter, & Maslach, 2009). The focus on burnout in professions which are related to other people has led to research in a variety of fields, including teachers and principals (Combs, Edmonson, & Jackson, 2009; Friedman, 1995, 1998; Skaalvik & Skaalvik, 2009, 2010).

Emotional Exhaustion

Burnout is often described as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). Maslach et al. (2001) identify emotional exhaustion as the key aspect of burnout because people who suffer from burnout mainly tend to refer to the experience of exhaustion (Maslach et al., 2001). Individuals experiencing exhaustion are characterized by a chronic state of physical or emotional depletion, which can be described as a feeling of being overextended and exhausted by one's work (Maslach, 2003; Schaufeli et al., 2009; Schaufeli, Salanova, González-romá, & Bakker, 2002). Because of the strong manifestation of exhaustion, some researchers have claimed that this dimension alone is sufficient for measuring burnout (Shirom, 1989).

Several studies of various occupations have demonstrated that burnout is related to subjective and objective health, as well job satisfaction and self-efficacy (Evers, Brouwers, & Tomic, 2002; Sari, 2005; Skaalvik & Skaalvik, 2007, 2009, 2010). For instance, Hakanen, Bakker, and Schaufeli (2006) demonstrated that emotional exhaustion correlated negatively with both self-rated health and work ability among Finnish teachers (Hakanen, Bakker, & Schaufeli, 2006). In a study of teachers in Hong Kong, Leung and Lee (2006) found that the exhaustion dimension of burnout predicted teachers' intentions of leaving the profession

(Leung & Lee, 2006). Additionally, teacher burnout has been shown to be moderately related to teacher self-efficacy (Evers et al., 2002). However, using structural equation modeling, Skaalvik and Skaalvik (2007) found a strong relation between teacher self-efficacy and teacher burnout.

Emotional exhaustion is also associated with decreased job performance and reduced job commitment (Tomic & Tomic, 2008). Job-related stressors such as workload and time pressure are highly correlated with burnout (Maslach et al., 2001). Previous research has documented that there are several sources related to burnout among principals. A study by Friedman (2002) indicates that difficulties with teachers and demanding parents may be among the main stressors that contribute to principal burnout (Friedman, 2002). Other frequent sources of burnout are issues such as complying with organizational rules and policies, excessively high self-imposed expectations, the feeling of having too heavy a workload, increased demands coupled with decreasing autonomy (Friedman, 1995, 1998, 2002; Sari, 2005; Whitaker, 1995; Whitehead, Ryba, & O'Driscoll, 2000).

In the present study, we expected that the emotional exhaustion dimension of burnout would be negatively related to self-efficacy, both among teachers and principals. As pointed out by Bandura (1997), teachers with a low self-efficacy view many aspects of their environment as being fraught with danger, dwell on their coping deficiencies, and magnify the severity of possible threats. Hence, we expected that low mastery expectations among both teachers and principals would increase occupational stress and emotional exhaustion (see Skaalvik & Skaalvik, 2007).

We also expected that emotional exhaustion would be negatively related to teachers' and principals' feelings of autonomy. For both teachers and principals, we suggest that the feeling of low autonomy or a lack of latitude may lead to a preoccupation of what is expected of them and whether they are able to meet these expectations. Such preoccupation with

others' expectations or demands is energy consuming and may lead to worry and occupational stress. It may also lead principals to feel a greater need to control teachers' work, thus contributing to lower levels of autonomy for teachers.

Job Satisfaction

Job satisfaction may be defined as positive or negative evaluative judgments people make about their job, and various theories of job satisfaction have been developed and are currently in use. From an historical viewpoint, this includes a shift from research on job satisfaction based on theories such as Maslow's (1954) theory of human needs to more of an emphasis on cognitive processes (Lu, While, & Barriball, 2005). Locke (1976) defined job satisfaction as a pleasurable or positive emotional state resulting from the appraisal of one's job. Similar definitions have been proposed by other researchers (Cranny, Stone, & Smith, 1992; Schultz, 1982; P. Smith, Kendall, & Hulin, 1969), thereby indicating a consensus that job satisfaction is an affective orientation towards one's job (Newby, 1999).

Previous studies of different occupations indicate that job satisfaction is positively related to both self-efficacy (Judge, Thoresen, Bono, & Patton, 2001; Klassen & Chiu, 2010) and autonomy (Rooney, et al., 2009; Yang, 2010), though it has been demonstrated to be negatively related to the emotional exhaustion dimension of burnout (Skaalvik & Skaalvik, in press). Job satisfaction is also related to work-related motivation, well-being, job contentment, absenteeism, and turnover intentions (S. Y. Chen & Scannapieco, 2010; Rooney et al., 2009; Tzeng, 2002; Vidal, Valle, & Aragon, 2007; Weisberg & Sagie, 1999; Yang, 2010). Several studies indicate that job satisfaction is also an important factor influencing teachers' relations to students (Van den Berg, 2002), teachers' enthusiasm (W. Chen, 2007), and teacher retention (Ingersoll, 2001).

Job satisfaction can manifest itself both as a global feeling towards one's work and as a separate attitude about various aspects or facets of one's job. The global approach is most

useful when overall job satisfaction is of interest, while the facets approach is used to explore which parts of the job produce satisfaction or dissatisfaction (Lu et al., 2005), and both of these approaches are of interest when measuring job satisfaction. Even so, there may be a problem with measuring facets and using them to indicate overall job satisfaction. This is due to differences in individuals' perception of what aspects of work are experienced as most satisfying. The problem with using such measures is that they overlook the fact that the impact of various facets on overall job satisfaction is dependent on how important each of the facets is for the individual.

In the present study, teachers' job satisfaction was predicted to be positively related to self-efficacy and autonomy, and negatively related to emotional exhaustion.

The Present Studies

The present chapter is comprised of two empirical studies of teachers and principals, respectively. Both studies investigate relations between *self-efficacy*, *autonomy* and *emotional exhaustion.* However, each study also includes distinctive variables. Study 1 (teachers) includes *perceived supervisory support* and *job satisfaction*. Study 2 (principals) includes principals' perceptions of *autonomy provided to teachers*.

Based on our theoretical analyses, two theoretical models are proposed. The first concerns teachers (Figure 1) and the second concerns principals (Figure 2). In both models, self-efficacy is hypothesized to positively predict the feeling of autonomy and to negatively predict emotional exhaustion. Furthermore, autonomy is hypothesized to predict lower levels of emotional exhaustion in both models. As a result, we also expect that self-efficacy is indirectly related to emotional exhaustion and that this relation is mediated through a feeling of autonomy.

Additionally, job satisfaction in Model 1 (teachers) is expected to be positively related to both self-efficacy and autonomy and negatively related to emotional exhaustion. In Model

1, we suggest that supervisory support predicts teachers' self-efficacy, feeling of autonomy, and job satisfaction positively, and emotional exhaustion negatively. In Model 2, principals' self-efficacy and their feeling of autonomy are both hypothesized to positively predict the degree of autonomy that principals provide to teachers.

Please insert Figures 1 and 2 about here

Data Analysis

The data were analyzed by means of confirmatory factor analysis (CFA) and structural equation modeling (SEM). These methods are powerful statistical tools for examining relations between latent constructs, and test a priori hypotheses regarding relations between observed and latent variables. This methodology has a confirmatory approach to the data (Byrne, 2010; Jackson, Gillaspy, & Purc-Stephenson, 2009).

When conducting CFA and SEM, the researcher defines a theoretical model of relations between the variables, which allows the use of two or more observed variables (e.g., items) as indicators of an unobserved underlying construct termed a latent variable. The theoretical model can be statistically tested to determine the extent to which it is consistent with the data. If the goodness of fit is adequate, the plausibility of the postulated relations among the variables is strengthened; if the fit is inadequate, the tenability of the postulated relations is rejected (Byrne, 2010).

CFA is part of the larger SEM family, and plays an essential role in evaluating the measurement model before a structural analysis is conducted. (Jackson et al., 2009; MacCallum & Austin, 2000). Challenges with SEM often occur because the measurement models of the structural analysis consist of issues that are not properly investigated (Jackson et al., 2009). Measurement models should first be examined, and it is essential that they reflect the desired constructs or factors under study. SEM is then used for testing models of linear relations between both observed and latent variables.

The collected data constitute an empirical covariance matrix that is the foundation for structural equation modeling. When conducting SEM, the analysis produces an estimated population covariance matrix based on the model specified. A key element of SEM is to assess whether the model produces an estimated matrix consistent with the sample matrix (Tabachnick & Fidell, 2007). This consistency is investigated through various measurement indices of goodness of fit. If the goodness of fit is adequate it supports the plausibility of the model specified. Different measures of fit are available and are assessed through indices such as CFI, IFI, TLI, and RMSEA, as well as the chi square test-statistics. For the CFI, IFI, and TLI indices, values greater than .90 are typically considered acceptable, whereas values greater than .95 indicate a good fit to the data (Byrne, 2010; Hu & Bentler, 1999). For well-specified models, an RMSEA of .06 or less indicates a good fit (Hu & Bentler, 1999)

The analyses were conducted using AMOS 18 software, and a maximum likelihood estimation was employed to estimate all models. Most of the analyses in AMOS are available with missing data. When confronted with missing data, the software performs a state-of-the-art estimation using full information maximum likelihood (FIML) instead of relying on ad-hoc methods such as list or pairwise deletion (Arbuckle, 2009).

Study I

Study 1 investigates relations between *self-efficacy*, *autonomy*, *emotional exhaustion, perceived supervisory support,* and *job satisfaction* among teachers. The theoretical model defines perceived supervisory support as the exogenous variable (see Figure 1). In this model we expect that all of the study's concepts will be positively related except for emotional exhaustion, which we assume will be negatively related to the other concepts.

Method

Participants and Procedure

The data analyzed in the present study are part of a larger data collection (see Skaalvik & Skaalvik, in press). The participants in the study were 2,569 teachers from 127 elementary schools and middle schools (1^{st} -10^{th} grade) in Norway, which was divided into five geographical regions. In each region, approximately 25 schools were drawn from one city, two towns and two rural areas by a stratified random procedure. The first contact with each school was made with the school principal, who was asked whether he or she would agree to the data collection at the school. Only two schools had to be replaced with other schools from the same region because of the principals not agreeing to the data collection, with the next step being to contact the teachers' representative at each school. The teachers' representative informed the teachers about the data collection, that the purpose of the study was to explore the working conditions for the teachers and that participation was voluntary and anonymous. The decision to participate was then made by the teaching staff at each school, and the teachers' representative also arranged for a particular period of time (60 minutes) to be set aside for teachers to simultaneously respond to the questionnaire. The data collection was administered in February-March 2010 by two trained research assistants who visited the schools and brought the questionnaires back.

The sample consisted of 72% females and 28% males. The age of the teachers varied from young teachers (the youngest was 23) to those close to retirement (the oldest was 69), with the mean age being 45. The average number of years in the teaching profession was 16. The schools varied with respect to size from schools with five teachers to schools with 82 teachers, with the average being 38. The average number of students in the schools was 370. Sixty-three percent of the teachers taught at the elementary level (grades 1-7), while 37 % taught at the middle school level (grades 8-10).

Instruments

Teacher Self-Efficacy - Teacher self-efficacy was measured by a multidimensional 24-item Norwegian Teacher Self-Efficacy Scale (NTSES) (Skaalvik & Skaalvik, 2007, 2010). The scale is comprised of six dimensions measured by four items each. The scale has previously been validated through confirmatory factor analyses (Skaalvik & Skaalvik, 2007, 2010), and is constructed according to Bandura's recommendations for item construction, including barriers in the item formulations.

The scale measures teacher self-efficacy within the following dimensions: (1) instruction, (2) adapting education to individual students' needs, (3) motivating students, (4) maintaining discipline, (5) cooperating with colleagues and parents, and (6) coping with changes and challenges. These dimensions are extensively described elsewhere (see Skaalvik & Skaalvik, 2007). The instrument originally consisted of 24 items. However, initial confirmatory factor analyses in the present study indicated that two items, both of which were concerned with cooperating with teachers, were unsound, and they were subsequently removed. Examples of remaining items are: "How certain are you that you can provide good guidance and instruction to all students regardless of their level of ability?" (instruction), and "How certain are you that you can provide realistic challenges for all students even in mixed ability classes?" (adapting education to the individual student's needs). Responses were given on a seven-point scale ranging from "Not certain at all" (1) to "Absolutely certain" (7). The Cronbach's alpha for the dimensions were .87, .90, .91, .94, .80, and .83, respectively.

Teacher Perceived Autonomy – Teachers' perceived autonomy was measured by use of a three-item scale developed for the purposes of this study. The scale focused on teachers' overall experience of autonomy at work, and the teachers were asked to rate statements indicating their levels of perceived autonomy. The items were: "In my daily teaching, I am free to choose teaching methods and strategies", "In the subjects that I teach, I feel free to

decide what content to focus on", and "I feel that I can influence my working condition." Responses were given on a six-point scale ranging from "Not at all" (1) to "Absolutely" (6). The responses were scored so that high scores indicated a strong autonomy. Cronbach's alpha for this dimension was .84.

Teacher Emotional Exhaustion - Emotional exhaustion was measured by a short six-item modified version of the emotional exhaustion dimension of the Maslach Burnout Inventory (MBI) – Educators Survey (Maslach, Jackson, & Leiter, 1996). The items were drawn from a Norwegian version of the MBI. Using a six-point scale, participants rated statements indicating that their work made them feel emotionally drained or exhausted. The short six-item version has previously been shown to have a Cronbach's alpha of .88 (Skaalvik & Skaalvik, 2010), with the Cronbach's alpha for emotional exhaustion in the present study being .90.

Teacher Job Satisfaction - Teachers' overall job satisfaction was measured by means of a four-item scale: "I enjoy working as a teacher", "I look forward to going to school every day", "Working as a teacher is extremely rewarding", and "When I get up in the morning, I look forward to going to work". Responses were given on a six-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for this scale was .91.

Perceived Supervisory Support - Teachers' perceived supervisory support focused on the extent to which teachers feel supported by management, which was measured by use of a three-item scale developed for the purposes of this study. The teachers were asked to rate statements indicating their levels of perceived supervisory support: "In educational matters, I can always seek help and advice from the school leadership", "My relation with the principal is one of mutual trust and respect", and "The school leadership is supportive and praises good work." The responses were given on a six-point scale ranging from "Not at all" (1) to "Absolutely" (6). Cronbach's alpha for perceived supervisory support was .88.

Results

The Measurement Model

The initial analysis consisted of a confirmatory factor analysis of the measurement model. The CFA was conducted to investigate the hypothesized five-factor structure of the latent constructs which consisted of teacher self-efficacy, perceived autonomy, emotional exhaustion, job satisfaction and perceived supervisory support. None of the error variances in the model were allowed to correlate.

The model had an acceptable fit to the data ($\chi 2$ (650, N = 2659) = 5951.9, p < .001, CMIN/DF = 9.157, RMSEA = 0.056, IFI = 0.923, TLI = 0.913, and CFI = 0.923), and all proposed factor loadings were significant and greater than .4. All correlations between the latent variables were significant (p < .001) though mostly moderate (Table 1). Self-efficacy was negatively related to emotional exhaustion and positively related to autonomy, job satisfaction, and perceived supervisory support. The strongest correlation was found between self-efficacy and job satisfaction (.46), supervisory support and a feeling of autonomy (.48), and emotional exhaustion and job satisfaction (-.56). These results support our expectations of perceived supervisory support, teacher self-efficacy, perceived autonomy, emotional exhaustion, and job satisfaction as being separate, but correlated constructs.

Please insert Table 1 about here

The Structural Model

The structural model specifies perceived supervisory support as the exogenous variable, with teacher self-efficacy, perceived autonomy, emotional exhaustion and job satisfaction as the unobserved endogenous variables (see Figure 3). None of the error variances in the model were correlated, and the model had an acceptable fit to data ($\chi 2$ (650, N = 2659) = 5951.9, p < .001, CMIN/DF = 9.157, RMSEA = 0.056, IFI = 0.923, TLI = 0.913, and CFI = 0.923). Estimates of the standardized regression weights and squared multiple

correlations for the latent variables are presented in Figure 3, whereas the total and indirect effects are reported in Table 2.

Please insert Figure 3 and Table 2 about here

The results reveal that all the regression weights in the model are significant at $p <$ .001. Self-efficacy was positively predicted by supervisory support (.23), and was directly related to perceived autonomy (.10) as well as to emotional exhaustion (-.19) and job satisfaction (.33). Job satisfaction was significantly and directly related to all constructs in the model. Furthermore, job satisfaction was indirectly related to supervisory support as well as to self-efficacy and autonomy. The strongest indirect relation was mediated through teacher self-efficacy, and the total effect (direct and indirect) of self-efficacy on job satisfaction was moderate to strong (.42).

Brief Summary of the Results

The results of the analyses of Model 1 support our expectation of a positive relation between teacher self-efficacy and perceived autonomy. As expected, the results also revealed a negative relation between self-efficacy and emotional exhaustion. Additionally, this study demonstrated that teacher self-efficacy was positively related to both supervisory support and teachers' job satisfaction.

We also expected an indirect relation between self-efficacy and emotional exhaustion, and that this relation would be mediated through perceived autonomy. The results revealed that this indirect relation was present but small (-.02).

Study 2

Study 2 investigated relations between *self-efficacy*, *autonomy*, *emotional exhaustion,* and the *degree of autonomy* that the principals provide the teachers. The theoretical model (see Figure 2) defines principal self-efficacy as the exogenous variable. As in Study 1, we

expected that all the concepts in the study would be positively related except for emotional exhaustion, which we assumed would be negatively related to the other concepts.

Method

Participants and Procedure

Participants in the present study were principals of public and private elementary schools and middle schools (1^{st} - 10^{th} grade) in Norway, all of whom were invited to participate. This amounts to approximately 2,900 schools and 1,818 principals responded to the survey. The data were collected using an electronic questionnaire. Information about the study and an invitation to participate was first distributed by mail to each of the respondents. Two weeks later, each respondent received a personal link to the survey, which was sent by e-mail.

The sample consisted of 47.1% males and 52.9% females. The age of the principals ranged from 29 to 70 years old, and the mean age was 52 years. The average teaching experience before becoming a principal was 13.5 years, while the average number of years of managing experience was 11.5. The sample consisted of principals from different school levels: 58.3% from elementary schools, 16.4% from middle schools and 23.1% from combined elementary and middle schools. The school size varied from 4 to 1,300 pupils, with an average of 215.

Instruments

Principal Self-Efficacy - A recently developed Norwegian Principal Self-Efficacy Scale (NPSES) was employed to investigate principal self-efficacy (Federici & Skaalvik, 2011a). The scale is comprised of 24 items distributed on eight subscales, with different numbers of items in each dimension. The NPSES has been validated as both a first- and second-order model through confirmatory factor analyses, but also through an inspection of its relation to work engagement. Through SEM, this analysis revealed that overall self-

efficacy predicted work engagement with a standardized estimate of .48 $p < .001$ (Federici & Skaalvik, 2011a). In the present study, the second-order model was of primary interest in exploring how a general domain-specific experience of principal self-efficacy relates to the other concepts.

The NPSES measures principals' self-efficacy within the following dimensions: (1) instructional leadership (two items), (2) economic management (three items), (3) administrative management (four items), (4) teacher support (two items), (5) school environment (five items), (6) relation to municipal authority (three items), (7) parental relations (two items), and (8) relation to local community (three items). Responses were given on a seven-point scale ranging from "Not certain at all" (1) to "Absolutely certain" (7). Examples of the items were: "How certain are you that you can initiate, plan and carry out instructional development?" (instructional leadership), "How certain are you that you can have an ongoing evaluation of all activities at school and follow these up?" (administrative management), and "How certain are you that you can attend to and support teachers who are struggling with strain or exhaustion?" (teacher support). Cronbach's alpha for the dimensions were .81, .91, .78, .77, .86, .74, .86, and .87, respectively.

Principal Perceived Autonomy - Perceived autonomy refers to the principals' work-related feelings of latitude and experience of self-determination. The measure consisted of a three-item scale developed for the purposes of this study, which was designed to capture their overall experience of autonomy at work. The principals were asked to rate statements indicating their levels of perceived autonomy: "At work, I stand quite free to prioritize what I think is important", "In my position, I have great freedom to work on what interests me", and "I feel that I have great freedom to prioritize how to spend my time". Responses were given on a six-point scale ranging from "Not at all" (1) to "Absolutely" (6), and the Cronbach's alpha for principals' perceived autonomy was .85.

Principal Emotional Exhaustion - Emotional exhaustion was measured by a short seven-item modified version of the emotional exhaustion dimension of the Maslach Burnout Inventory (MBI). The items were drawn from a Norwegian version of the MBI, and the scale has been tested in previous studies (see Federici & Skaalvik, 2011b). The principals rated statements indicating the degree to which their work makes them feel emotionally drained or exhausted. Responses were given on a seven-point scale ranging from "Never" (1) to "Daily" (7) and the Cronbach's alpha for emotional exhaustion was .91.

Autonomy Provided to Teachers - The extent to which principals provide autonomy to their teachers was measured by use of a three-item scale developed for the purposes of this study. The items were: "At this school, teachers have much individual freedom in relation to the choice of instructional methods", "Teachers at this school are free in relation to the emphasis of content in the subjects they teach in" and "The teachers at this school have a great influence on their work." The principals were asked to rate statements on a six-point scale ranging from "Not at all" (1) to "Absolutely" (6), and the Cronbach's alpha for the autonomy provided to teachers was .61. Despite the low alpha value, the scale was retained on a statistical basis. The correlation between the items varied from .342 to .422 ($p < .01$), and initial analyses using CFA revealed that removing one of the items or the entire scale did not contribute to a better fit.

Results

The Measurement Model

The initial analysis consisted of a confirmatory factor analysis of the measurement model. The CFA was conducted to investigate the hypothesized four-factor structure of the latent constructs which was comprised of principal self-efficacy, perceived autonomy, emotional exhaustion and autonomy provided to teachers. None of the error variances in the model were allowed to correlate.

The model had an acceptable fit to data ($\chi 2$ (616, N = 1818) = 2932.8, p < .001, CMIN/DF = 4.761, RMSEA = 0.045, IFI = 0.931, TLI = 0.922, and CFI = 0.931), and all proposed factor loadings were significant and greater than .4. With one exception, all correlations between the latent variables were significant (p < .001) though mostly moderate (Table 3). Self-efficacy was moderately and positively related to perceived autonomy (.41) and moderately and negatively related to emotional exhaustion (-.42). Self-efficacy was also positively but weakly related to the degree of autonomy that principals provided to teachers (.13). Autonomy was moderately and negatively related to emotional exhaustion (-.46). These results support our expectations of principal self-efficacy, and principals' perception of autonomy, emotional exhaustion, and autonomy given to teachers as separate but correlated constructs.

Please insert Table 3 about here

The Structural Model

The structural model specifies principal self-efficacy as the exogenous variable, and perceived autonomy, emotional exhaustion, and autonomy provided to teachers as the unobserved endogenous variables. None of the error variances in the model were correlated. An initial analysis revealed that all regression weights between the latent constructs were significant at p < .001 with the exception of one. The non-significant regression weight between principal self-efficacy and autonomy provided to the teachers (β = .067, p = .068) was removed in the final model (Figure 4). The final model had an acceptable fit to the data ($\chi 2$ (617, N = 1818) = 2935.8, p < .001, CMIN/DF = 4.758, RMSEA = 0.045, IFI = 0.931, TLI = 0.922 and CFI = 0.931). Estimates of the standardized regression weights and squared multiple correlations for the latent variables are presented in Figure 4, while the total and indirect effects are presented in Table 4.

Please insert Figure 4 and Table 4 about here

Self-efficacy was not significantly and directly related to the autonomy provided to teachers. However, Table 4 reveals a small positive indirect relation (.075) mediated through perceived autonomy and emotional exhaustion. In addition, self-efficacy was both directly (-.28) and indirectly (-.14) related to emotional exhaustion. The indirect relation was mediated through the feeling of autonomy.

Brief Summary of the Results

As with Study 1, the results from the analyses of Model 2 support our expectations of a positive relation between principal self-efficacy and perceived autonomy. In Study 2, the results also revealed a negative relation between self-efficacy and emotional exhaustion. Additionally, the analyses demonstrated that principal self-efficacy was indirectly related to the degree of autonomy provided to the teachers.

As for the teachers, we also expected an indirect effect of self-efficacy on emotional exhaustion and that this relation would be mediated through perceived autonomy. The results revealed that this indirect effect was small.

Conclusion

Different concepts and their relations with self-efficacy were investigated in two separate studies, one for teachers (Study1) and one of school principals (Study 2). Both studies revealed that self-efficacy was positively related to perceived autonomy and negatively related to emotional exhaustion. Study 1 also showed that teacher self-efficacy was positively related to supervisory support and to teachers' job satisfaction, whereas Study 2 showed that principal self-efficacy indirectly predicted the degree of autonomy or independence that principals provided to teachers.

According to Bandura (2006b), efficacy beliefs determine how environmental opportunities and impediments are perceived. A possible explanation of the relation between self-efficacy and a feeling of autonomy is that teachers and principals with high mastery expectations focus more on challenges and possibilities, while teachers and principals with lower mastery expectations focus more on impediments and obstacles. Hence, by focusing on possibilities rather than limitations, teachers and principals with high mastery expectations may perceive greater latitude, thereby increasing the feeling of having autonomy within formal boundaries.

One possible interpretation of the relation between self-efficacy and emotional exhaustion is that high mastery expectations work as a buffer against emotional exhaustion. According to Bandura (2006b, 2006c), people with low mastery expectations may experience more stress and anxiety than those with higher mastery expectations. As discussed above, people with low mastery expectations dwell more on impediments and obstacles,which may result in uncertainty, thus making them more vulnerable to stress and emotional exhaustion. In comparison, people with high self-efficacy focus less on obstacles and worry less about failing. Consequently, they use less energy on worrying and have lower levels of stress. As a result, they develop lower levels of emotional exhaustion.

Both studies also indicate that autonomy is predictive of lower levels of emotional exhaustion. Hence, self-efficacy is both directly and indirectly related to emotional exhaustion, with the indirect relation being mediated through a feeling of autonomy. One possible explanation for the negative relation between autonomy and exhaustion could be that teachers and principals with a strong feeling of autonomy use less time and energy to question what is expected of them and worrying about whether they will be able to meet these expectations. A related explanation may be that teachers and principals who feel that they lack autonomy may also feel that they are forced to work towards goals and use means and

methods that are not congruent with their own values. The feeling that one lacks autonomy may therefore work as a barrier against acting according to one's own goals and values (for a discussion of value consonance, see Skaalvik & Skaalvik, in press). Because teaching and the administration of education is typically driven by values and intrinsic motivation (see Skaalvik & Skaalvik, in press), such a lack of value consonance may result in stress, worry, and emotional exhaustion.

Additionally, Study 1 showed that teacher self-efficacy was predictive of a higher degree of job satisfaction. This relation was partly an indirect one, and was mediated through autonomy and emotional exhaustion. However, there was a relatively strong direct relation of .33 that was not mediated through autonomy or exhaustion. A possible explanation for this is that efficacy beliefs affect the quality of one's emotional life and the vulnerability to stress and depression (Bandura, 2006b, 2006c). Thus, efficacy beliefs might be expected to affect job satisfaction, which may be defined as a pleasurable or positive emotional state resulting from the appraisal of one's job (Locke, 1976).

Study 1 also revealed that supervisory support positively predicted both teacher self-efficacy and teachers' feeling of autonomy. Our measure of supervisory support resembles measures of autonomy support, including teachers feeling that they could seek help and advice from the school leadership, that they were respected by the leadership, and that the leadership was supportive and praised good work. For that reason, supervisory support is likely to be perceived as reflected appraisals from significant others, which tend to increase people's beliefs in themselves and what they can do. Additionally, such supervisory support is likely to be perceived as a signal that the teachers are trusted and given some degree of latitude, which may explain the strong relation between supervisory support and a feeling of autonomy.

Study 2 also revealed that principal self-efficacy was indirectly related to the degree of autonomy principals provided to teachers. One indirect relation was mediated through the feeling of autonomy, with a possible explanation for this being that principals who feel that they have autonomy and are not extensively controlled by the municipal authority feel more secure and less threatened. Hence, their need to control teachers may be reduced. Nonetheless, we also found a small negative indirect relation between self-efficacy and autonomy provided to teachers, which was mediated through emotional exhaustion. Although the relation was weak, we found that principals experiencing emotional exhaustion tended to allow more autonomy to the teachers. One possible interpretation for this is that emotional exhaustion is energy consuming and principals experiencing exhaustion do not have the energy to involve themselves in the educational processes at the school.

The research described in this chapter confirms expectations that were derived from self-efficacy theory, which is particularly strongly supported because the expectations were confirmed for teachers as well as for school principals. Taken together, the results strongly support the expectation that self-efficacy affects a variety of affective as well as behavioral responses. A practical implication of these results is that it is important to foster self-efficacy, both among teachers and school principals.

The present study has several limitations. Firstly, the concepts used in this study do not operate in isolation from other psychological determinants that may affect teachers' and principals' motivation and performance. Therefore, other constructs should be explored in relation to those included in this study. Secondly, future research should investigate the causal relations between self-efficacy, autonomy, and emotional exhaustion by means of longitudinal studies. We should also note that both the Norwegian Teacher Self-Efficacy Scale (NTSES) and the Norwegian Principal Self-Efficacy Scale (NPSES) have yet to be tested in cultures other than the Norwegian. The dimensions constituting the scales are considered to be

applicable to all teachers and principals, although future research should verify the factor structure of the instrument in various contexts and cultures.

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Table 1
Correlations between the five latent constructs in Study 1

Dimension	1	2	3	4	5
1. Teacher self-efficacy	-				
2. Perceived autonomy	.200	-			
3. Emotional exhaustion	-.246	-.247	-		
4. Job satisfaction	.463	.297	-.555	-	
5. Perceived supervisory support	.224	.475	-.228	.282	-

Note. All correlations are significant at $p < .001$.

Table 2
Standardized total and indirect effects between the latent variables in Study 1

Latent variable	Total effect	Indirect effect
Job satisfaction		
Teacher self-efficacy	.421	.099
Perceived autonomy	.161	.069
Perceived supervisory support	.282	.216
Emotional exhaustion		
Teacher self-efficacy	-.205	-.015
Perceived supervisory support.	-228	-.117

Table 3
Correlations between the four latent constructs in Study 2

Dimension	1	2	3	4
1. Principal self-efficacy	-			
2. Perceived autonomy	.409	-		
3. Emotional exhaustion	-.421	-.457	-	
4. Autonomy to teachers	.125	.289	-.018	-

Note. All correlations are significant at $p < .001$ except between emotional exhaustion and autonomy to teachers.

Table 4
Standardized total and indirect effects between the latent variables in Study 2

Latent variable	Total effect	Indirect effect
Autonomy to teachers		
Principal self-efficacy	.075	.075
Perceived autonomy	.309	-.064
Emotional exhaustion		
Principal self-efficacy	-.420	-.141

Figure captions:

Figure 1: Theoretical model of relations between the concepts in Study 1 (teachers) (A=Instruction, B=Adapting education to student needs, C=Motivating students, D=Keeping discipline, E= Cooperating with colleagues and parents, F=Coping with changes and challenges)

Figure 2: Theoretical model of relations between the concepts in Study 2 (principals) (A=Economy, B=Instructional leadership, C=Parental relations, D=Municipal authority, E=Administrative management, F=Teacher support, G=Relation to local community, H=School environment)

Figure 3: Hypothesized structural model of the relations between teacher self-efficacy, perceived autonomy, emotional exhaustion, job satisfaction, and perceived supervisory support (A=Instruction, B=Adapting education to student needs, C=Motivating students, D=Keeping discipline, E= Cooperating with colleagues and parents, F=Coping with changes and challenges)

Figure 4: Hypothesized structural model of the relations between principal self-efficacy, perceived autonomy, emotional exhaustion and given autonomy to teachers (A=Economy, B=Instructional leadership, C=Parental relations, D=Municipal authority, E=Administrative management, F=Teacher support, G=Relation to local community, H=School environment)

Figure 1

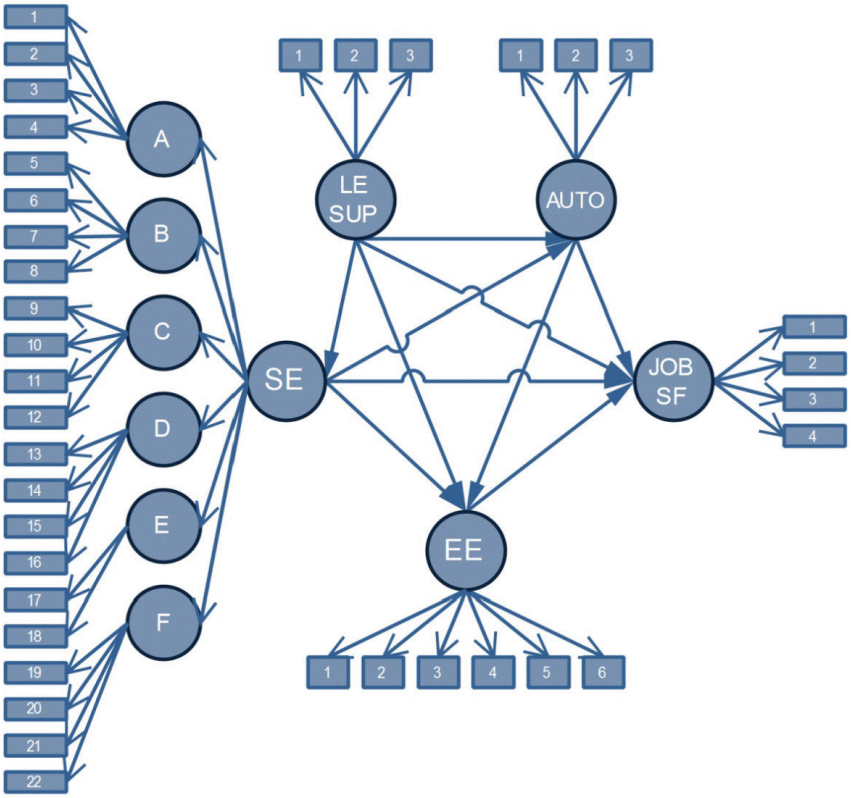
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Figure 2

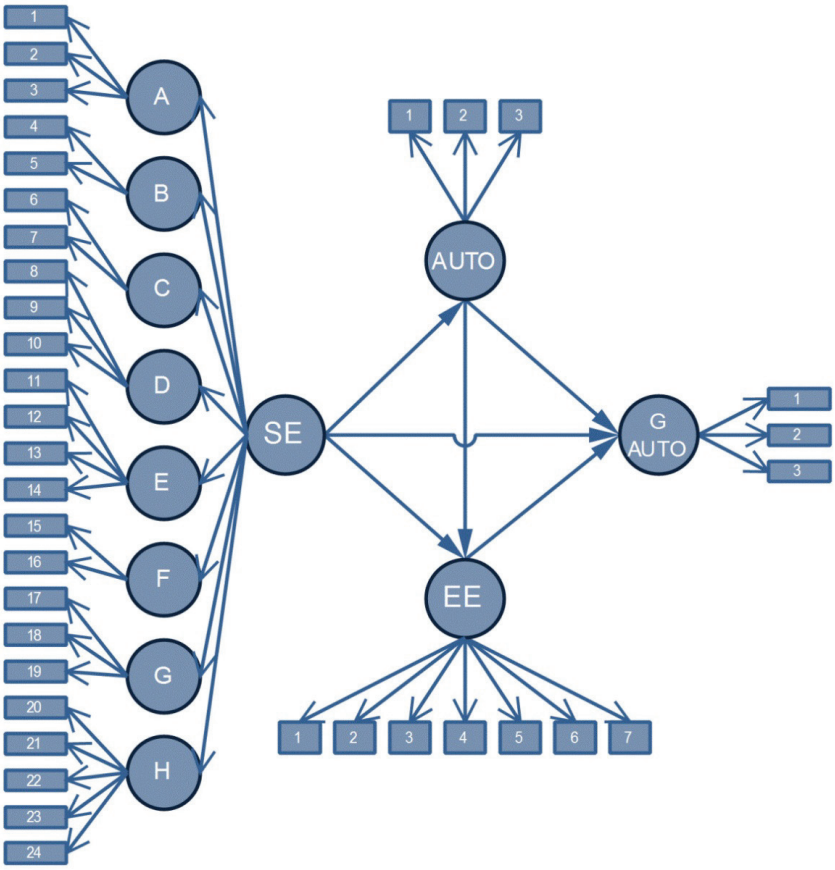
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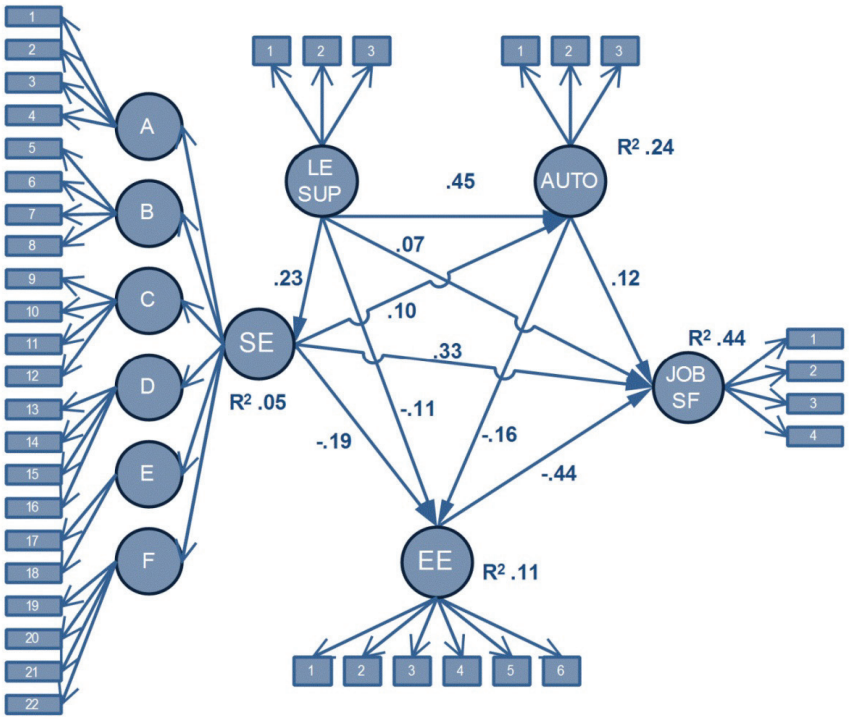
Figure 3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JOB SF
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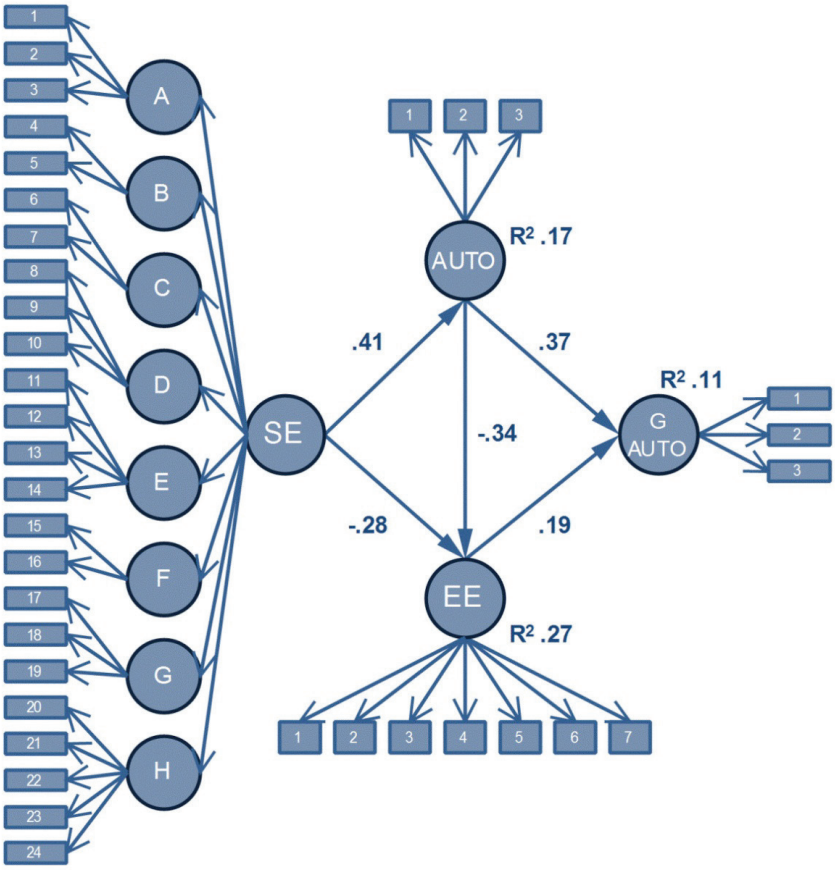
Figure 4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APPENDICES

APPENDIX A

Interview guide

Demographic variables:

- Education.
- Experiences as principal
- Other experiences
- School type
- Number of students
- Number of employees

Immediate thoughts about being principal:

What are your immediate thoughts about being a principal?

What do you perceive as the most important in your work?

Why do you perceive this as important?

What do you spend most time on?

What do you spend least time on?

Are there areas where you use a lot of time, but you don't perceive this as important?

Own expectations to the role as principal:

What kind of expectations do you feel is related to the role as principal?

Where do these expectations come from?

How do you feel about this?

Can you elaborate on this?

Own experience of leadership and goal achievement:

When do you feel like you're doing a good job?

Can you elaborate on this?

Which tasks do you delegate?

Why?

If you had the possibility, are there any tasks you would have done differently?

Why?

Relations:

Which relations do you perceive as the most important?

Which relations do you perceive as the most important?

How do you relate to them?

Challenges:

Can you describe the biggest challenges in your work?

Which challenges do you deal with best?

Which challenges do you deal with poorly?

Is there anything you worry about?

Strain:

Are there any areas in your work you perceive as stressful?

Why do you perceive these areas as stressful?

Are there any areas in your work you wish you had more time?

Summary:

Are there any parts of the development of the Norwegian school system that you find worrying?

Is there anything you can do as principal?

Are there any areas in your work that you haven't mentioned, but you perceive as important to describe you work?

Do you have anything else you want to add?

APPENDIX B

Rotated factor solution of the NPSES

Table B1: Component loadings for Principal Component Analysis with Varimax Rotation

	Factors							
Variable	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]	7[g]	8[h]
1	.782							
2	.766							
3	.726							
4	.708							
5	.644							
6		.715						
7		.686						
8		.669						
9		.668						
10			.843					
11			.835					
12			.802					
13				.846				
14				.783				
15					.917			
16					.879			
17						.788		
18						.726		
19							.775	
20							.690	
21								.884
22								.524

Note. Values below .4 are suppressed. [a]School environment, [b]Administrative management, [c]Relation local community, [d]Teacher support, [e]Economic management, [f]Parental relations, [g]Instructional leadership, [h]Municipal authority.

APPENDIX C

The 24 items of the Norwegian Principal Self-Efficacy Scale (NPSES)

How certain are you that you can manage:

Instructional leadership:
…develop this school's instructional platform.
…initiate, plan and carry out instructional development.

Economic management
…keep track of the school's finances
…have a constant overview of the school's financial situation
…be sure that the finances of the school are under control.

Administrative management
…follow up and implement all decisions taken.
…have an ongoing evaluation of all activities at school and follow these up.
…always use your management prerogatives in relation to your employees in a constructive manner.
…facilitate work conditions for your staff in such a way that the work can be done constructively.

Teacher support
…support and assist teachers with challenges or problems.
…attend to and support teachers who are struggling with strain or exhaustion.

Parental relations
…collaborate with the parents' representatives.
…develop a good relationship of cooperation between school and home.

School environment

…develop a school where all teachers experience well-being.

…engage your employees in their professional development.

…develop a good psychosocial environment for the pupils.

…engage the pupils to take responsibility to make the school a better place to learn.

…develop a school that is open and welcoming to the pupils.

Relation to municipal authority

…promote the school's needs to the municipal authority.

…get the municipal authority to change their opinion if you disagree.

…collaborate with the municipal authority about future directions for the school.

Relation to local community

…use resources in the community (people and areas).

…ensure that the school has contact with various groups and institutions in the community.

…maintain contact and cooperate with local businesses.

APPENDIX D

Standardized factor loadings (NPSES Model 2)

Table D1: Factor loadings from the first order confirmatory factor analysis of Model 2

	Factors and standardized factor loadings							
Variable	1[a]	2[b]	3[c]	4[d]	5[e]	6[f]	7[g]	8[h]
1	.745							
2	.765							
3	.774							
4	.793							
5	.813							
6		.692						
7		.712						
8		.731						
9		.779						
10			.844					
11			.873					
12			.778					
13				.842				
14				.758				
15					.980			
16					.810			
17						.899		
18						.773		
19							.737	
20							.743	
21								.737
22								.479

Note. All loading are significant at $p < .001$. [a]School environment, [b]Administrative management, [c]Relation local community, [d]Teacher support, [e]Economic management, [f]Parental relations, [g]Instructional leadership, [h]Municipal authority.

APPENDIX E

Factor loadings (NPSES Model 3)

Table E1: Factor loadings from the second order confirmatory factor analysis of Model 3

Latent variable	Unstandardized factor loadings	Standardized factor loadings	SE
Second order NPSES			
School environment	.552	.876	.044
Administrative management	.666	.869	.059
Relation local community	.519	.515	.069
Teacher support	.534	.723	.048
Economic management	.604	.463	.078
Parental relations	.645	.803	.047
Instructional leadership	.555	.842	.050
Municipal authority	.754	.668	.064

Note. All factor loadings are significant at $p < .001$.

APPENDIX F

Rotated factor solution of the UWES

Table F1: Component loadings for Principal Component Analysis with Varimax Rotation

	Factors	
Variable	1	2
1	.886	
2	.884	
3	.831	
4	.814	
5	.801	
6	.761	
7	.698	
8		.915
9		.865

Note. Values below .4 are suppressed.