

1
2
3
4
5
6

Joan van Horn was born in Amsterdam, the Netherlands, on January 28th 1965. She finished secondary school in 1986 at Dukenburg College Nijmegen. In 1993, Joan graduated from the University of Nijmegen of which she holds a Master's degree in Work & Organizational Psychology. The year after, she commenced her research into stress and burnout among teachers at Utrecht University, Department of Clinical & Health Psychology. The introductory course 'Criminology' at the Faculty of Criminal Law in Utrecht and the post-doctoral course 'Forensic behaviorism' at RINO Noord-Holland in Amsterdam were successfully completed in 1999. From 1998 onwards, Joan has been employed as a researcher at Forensic Diagnostics (FORA) in Leiden, participating in several projects such as the 'trafficking of young women', 'sexual abuse and prostitution of young men' and the 'prevalence of ADHD among male delinquents', some of which were conducted under the authority of and in close corporation with others.

TEACHER BURNOUT
A FLICKERING FLAME
Joan van Horn



TEACHER BURNOUT

AN EMPIRICAL STUDY AMONG TEACHERS
FROM A SOCIAL EXCHANGE PERSPECTIVE

A FLICKERING FLAME

Joan van Horn



TEACHER
BURNOUT

A
FLICKERING
FLAME

TEACHER BURNOUT

AN EMPIRICAL STUDY ON BURNOUT AMONG
TEACHERS FROM A SOCIAL EXCHANGE PERSPECTIVE

A FLICKERING FLAME

Burnout bij leraren: een flikkerende vlam

Een empirisch onderzoek naar burnout bij leraren
vanuit een sociaal uitwisselingsperspectief
(met een samenvatting in het Nederlands)

Proefschrift ter verkrijging van de graad van doctor aan de Universiteit Utrecht op gezag van
de Rector Magnificus, Prof. dr. W.H. Gispen, ingevolge het besluit van het College voor Promoties
in het openbaar te verdedigen op vrijdag 13 september des middags te 16:15 uur door:

Joan Ellen van Horn

geboren op 28 januari 1965 te Amsterdam

<hr/> <div><div>PROMOTOR:</div><div>Prof. dr. w.B. Schaufeli</div><div>Utrecht University</div><div>Social & Organisational Psychology</div></div> <hr/> <div><div>CO-PROMOTOR:</div><div>dr. T. W. Taris</div><div>Katholieke Universiteit Nijmegen</div><div>Work & Organisational Psychology</div></div> <hr/> <div><div>TEACHER BURNOUT: A FLICKERING FLAME</div><div>An empirical study on burnout among teachers</div><div>from a social exchange perspective</div></div> <hr/> <div><div>Thesis, Utrecht University, Faculty of Social Sciences</div><div>Social & Organizational Psychology, including summary in Dutch</div></div> <hr/> <div><div>Joan van Horn</div></div> <hr/> <div><div>KEY WORDS</div><div>social exchange theory, burnout, teachers</div></div> <hr/> <div><div>GRAPHIC DESIGN</div><div>Jennifer Chin (BNO), Den Haag, The Netherlands</div></div> <hr/> <div><div>ISBN: 90 5166 922 4</div></div> <hr/> <div><div>Eburon Publishers</div><div>P.O.BOX 2867</div><div>2601 CW Delft</div><div>The Netherlands</div><div>Phone (+31) 15 2131484</div><div>Fax (+31) 15 2146888</div><div>info@eburon.nl</div><div>www.eburon.nl</div></div> <hr/> <div><div>© 2002 J.E. van Horn, Utrecht, The Netherlands</div><div>All rights reserved. No part of this book may be reproduced,</div><div>stored in a retrieval system of any nature or transmitted in any form</div><div>or by any means, electronic, mechanical, photocopying, recording</div><div>or otherwise, without prior written permission of the author.</div></div> <hr/>	<hr/> <div><div>PROLOGUE</div><div>BURNOUT AMONG TEACHERS: A FLICKERING FLAME</div></div> <hr/> <div><div>MASLACH BURNOUT INVENTORY</div><div>The Dutch Educators Survey (MBI-NL-ES) psychometric evaluations</div></div> <hr/> <div><div>A CANADIAN-DUTCH COMPARISON OF TEACHERS' BURNOUT</div></div> <hr/> <div><div>A MULTI-DIMENSIONAL</div><div>APPROACH TO MEASURING TEACHER WELL-BEING</div></div> <hr/> <div><div>LACK OF RECIPROCITY AMONG DUTCH TEACHERS</div><div>validation of reciprocity indices and their relation to stress and well-being</div></div> <hr/> <div><div>TEACHER BURNOUT ANDLACK OF RECIPROCITY</div></div> <hr/> <div><div>INEQUITY, BURNOUT AND</div><div>PSYCHOLOGICAL WITHDRAWAL AMONG DUTCH TEACHERS</div><div>a dynamic exchange model</div></div> <hr/> <div><div>EPILOGUE</div></div> <hr/>	<div>page 1 - 11</div> <div>page 12 - 45</div> <div>page 46 - 63</div> <div>page 64 - 81</div> <div>page 82 - 115</div> <div>page 116 - 137</div> <div>page 138 - 171</div> <div>page 172 - 196</div>
--	---	---

VOORWOORD

En gij, Daniël! sluit deze woorden toe, en verzegel dit boek, tot den tijd van het einde; velen zullen het naspeuren, en de wetenschap zal vermenigvuldigd worden.

Daniël, 12:4

Het schrijven van een proefschrift heet een proeve van bekwaamheid. Mijn proeve van bekwaamheid had vele gezichten, waarvan een aantal niet onvermeld kan blijven.

Allereerst mijn wetenschappelijke ‘opvoeding’: het was een proces van leren en afleren. Aangaande het laatste werd ik me er pijnlijk van bewust dat de in de collegebanken ingestampde ‘empirische cyclus van De Groot’, waarin successievelijk de fasen ‘observatie-inductie-deductie-toetsing-evaluatie’ worden doorlopen, nauwelijks meer opgeld deed. Het ging eerder om het (her)formuleren van hypothesen naar de resultaten dan om hypothese-toetsing. Bovendien leek het binnen de wetenschap nog maar om één ding te gaan: te komen tot een Engelstalige publicatie waarin op basis van longitudinale data significante bevindingen zijn gedaan. Naar mijn idee wordt de wetenschappelijke vooruitgang echter niet alleen bereikt door het openbaar maken van significante afwijkingen, maar tevens door kennis te nemen van resultaten gebaseerd op niet-significante p-waarden, omdat juist deze ons stof tot nadenken geven!

In dit proefschrift concludeer ik dat het concept welbevinden uit meerdere dimensies bestaat en dat de mate waarin iemand zich ‘niet wel bevindt’ vooral tot uiting komt in diens emotionele en affectieve gemoedstoestand. In de perioden waarin ik zelf geconfronteerd werd met een aantal emotionele en affectieve ‘setbacks’ heb ik me soms afgevraagd of ik nog voldoende in staat was om op adequate wijze invulling te blijven geven aan mijn functie als AIO. De veronderstelling dat een onevenwichtigheid tussen de investeringen in en opbrengsten uit het werk, gevoelens van onbillijkheid teweegbrengt (het theoretisch kader van mijn proefschrift), kreeg voeding in de praktijk: mijn investeringen en opbrengsten raakten op bepaalde momenten uit balans.

In de theorie over onbillijkheid wordt aangenomen dat mensen streven naar een balans tussen hun investeringen en opbrengsten. Onbillijkheid als gevolg van een ervaren disbalans tussen investeringen en opbrengsten zou mensen er dan ook toe aanzetten om hun investeringen en opbrengsten weer in balans te krijgen door bijvoorbeeld de investeringen te verlagen tot het niveau van de opbrengsten (hypothese Ho). Hypothese Ho heb ik op grond van de bevindingen beschreven in mijn proefschrift moeten verwerpen. Het bleek namelijk dat door het verminderen van investeringen onbillijk-

heidsgevoelens eerder toe- dan afnemen. Het verwerpen van hypothese Ho dwong mij tot het formuleren en toesten van een alternatieve hypothese (Halt). Hypothese Halt stelt dat het succesvolle afronden van een promotie-onderzoek bereikt wordt door, naast het investeren in de kerntaak (het schrijven van een proefschrift), eveneens geïnvesteerd dient te worden in de sociaal-psychologische uitwisselingprocessen met collega's, vrienden, familie en andere intimi. Halt heeft de toets doorstaan ($p \leq .001$): de korte en lange termijn opbrengsten uit genoemde sociale uitwisselingsrelaties hebben mij mede in staat gesteld om af te ronden waar ik aan begonnen was.

Tot slot. Ik heb - zoals gezegd - veel geleerd. De belangrijkste en wellicht meest fundamentele conclusie die ik uit het geleerde heb getrokken is dat mijn hart - ondanks of misschien juist dankzij alles - bij de wetenschap ligt. De mens is grillig en laat zich moeilijk doorgronden. De uitdaging is dan ook om theorieën te ontwikkelen met de praktijk (= de mens) als uitgangspunt.

Joan van Horn

EEN WOORD VAN DANK

Terugblikkend op de afgelopen acht jaren stel ik met een glimlach vast dat de totstandkoming van dit proefschrift in belangrijke mate een 'joint venture' was waar menigeen een inhoudelijk, emotioneel en instrumenteel ondersteunend en/of motiverend aandeel in heeft gehad. In het bijzonder wil ik graag even stil staan bij:

Wilmar Schaufeli, mijn (pro)motor achter dit proefschrift. In Nijmegen gaf je me je boek 'Opgebrand. De achtergronden van werkstress bij contactuele beroepen: het burnoutsyndroom' met de inscriptie: "Op een vruchtbare samenwerking". Je hebt me meegenomen op een boeiende, confronterende, maar vooral leerzame wetenschappelijke tocht. Onze samenwerking heeft z'n vruchten afgeworpen.

Met Dirk Enzmann heb ik in de periode dat hij op de Universiteit Utrecht werkzaam was, geregeld in een mengelmoesje van Nederlands, Duits en Engels vruchtbare discussies gehad over zeer fundamentele aspecten aangaande mijn proefschrift. Dirk, ik herinner me de keren dat ik mijn hoofd bij je om de deur stak met een korte vraag om vervolgens twee uren later vol nieuwe 'input' weer te vertrekken.

Toon Taris, mijn co-promotor. Je hebt met je inhoudelijke en vooral statistische bijdragen mijn proefschrift naar een hoger niveau getrokken.

John Daamen en Hanneke van Mierlo, destijds werkzaam bij de Gemeentelijke Instelling Bedrijfsgezondheidszorg (GI-BGZ) Regio Eindhoven, hebben mij in diverse van hun werkbelevingsonderzoeken op scholen de ruimte gegeven om data te verzamelen voor mijn promotie-onderzoek. John, ik ben niet vergeten dat je me 'opraapte' tijdens mijn eerste stressperiode om in Indonesië weer bij te tanken.

De leraren van basisschool 'De Bijenkorf', MBO 'Kempengoort', Technisch Lyceum Eindhoven, speciaal basisonderwijs 'De Horst' die - ondanks de hoge werkdruk - hun medewerking hebben verleend aan mijn onderzoek ben ik bijzonder erkentelijk.

Peter Hoonakker, met wie ik - onder de vlag van P2 'Onderzoek & Advies' en de Universiteit Utrecht, in 1996 het onderzoek 'Stress op School' (SOS) startte, heeft mij geïntroduceerd bij een aantal scholen in het oosten van het land. Peter, je haast vaderlijke advies en bezorgdheid hebben me gestimuleerd en ontroerd.

Van de Stichting Carmel College wil ik de leraren van het Pius X College, Jacobus College, Florens Radewijns College en Twents Carmel Lyceum bedanken voor hun inzet en medewerking.

Denise Caljé, destijds werkzaam bij het Instituut voor Werk & Stress (IWS), leerde ik in 1995 kennen. Met haar schreef ik in het kader van het ontwikkelen van het Periodiek Arbeidsgezondheidskundig Onderzoek (PAGO), mijn eerste Nederlandstalig artikel. Onder de aliassen ‘Jut & Jul’ bestreken onze verdere gezamenlijke acties een veel breder terrein waaronder onze reisjes naar Rome en Moskou.

Marco Strik, Pieter Willems en Dirk van Dierendonck vormden vanaf het begin mijn sociaal, maar vooral proefschrift geweten. Ze hebben er middels een systeem van straf en beloning voor gezorgd dat bij mij geen proefschrift-extinctie kon optreden. Ik liet me verleiden tot het vastleggen van potentiële manuscript-inlever-data op bierviltjes en video-opnames. Marco, Pieter en Dirk als ik jullie niet had gehad ... En Marco, de afstand van gang E naar gang F was beslist niet groter dan de afstand van gang F naar E. Pieter, laat de andere helft van “It’s easier to write a boring book than to read it” maar komen! Dirk, you’re worrying days are over: ik ben in balans.

Mijn maatjes van de Universiteit Utrecht, *Brigitte Boon, Trudy Mooren en Elpine de Boer* waarmee ik niet alleen proefschrift gerelateerd lief en leed heb gedeeld. Brigitte, ik kijk er naar uit om weer met jou te relaxen in de sauna en te luisteren naar de ‘singer-song writers’ in Tivoli. Trudy, ik koester de Ouwe Lullen Dagen (OLD) die wij elk jaar demonstratief opnamen om samen iets leuks te gaan doen ter onderbreking van onze werkzaamheden. Elpine, gedeelde smart is halve smart. Je vertrouwen in mij heeft me geraakt. Het vertrouwen is wederzijds.

Door de gezellige dagelijkse omgang met mijn collega’s binnen en buiten de capaciteitsgroep Klinische Psychologie en Gezondheidspsychologie (KPG) ging ik met extra veel plezier naar de universiteit toe. Bijzondere herinneringen heb ik aan *Dedy van der Poel, Annelies van Lier, Eamonn Hanson, Sander Toby, Hubertine Bussing*, en mijn roomy *Peter Honkoop*. De interesse in mijn proefschriftvorderingen van mijn collega’s van FORA was hartverwarmend. Een speciaal plekje hebben *Lita sanroddji, janny lukkien* en *Ruud Bullens*. *Lita, blaka rosae*, ik ben zo benieuwd hoe een Koto Misi je staat. *Janny*, je bent me opgevallen door je attentheid en interesse in mij en anderen. *Ruud*, bedankt voor de ruimte die je me hebt gegeven om mijn proefschrift af te ronden. Laten wij eens van gedachten wisselen over hoe wij de forensische psychologie gaan bestormen met nieuwe ideeën.

Als er twee personen zijn die mij het meest dicht na aan het hart liggen dan zijn het wel mijn mooie paranimfen, *Joyce van Horn* en *Jennifer Chin*. Joyce, woorden schieten mij te kort (en dat gebeurt zelden) om uitdrukking te geven aan alles wat wij - veel verder strekkend dan mijn AIO-periode –

gedeeld hebben en delen. Jennifer, de afronding van mijn proefschrift hebben we samen zeer intensief beleefd: werken tot diep in de nacht bij BUZA waar de lichten om 23:00 uur uitgingen en wij bij een enkele lamp het manuscript vermenigvuldigden. Voor even voelde ik me weer student. Tussen de proefschriftbedrijven door belandden we – als vanouds – in diepzinnige gesprekken die de uurtjes nog kleiner maakten. Jen, ik ben ondersteboven van je toewijding en het resultaat. Over onder en boven gesproken: stoeien?

Sylvia en *Jim van Horn*, jullie hebben al die jaren veel belangstelling getoond voor het reilen en zeilen van mijn promotie. Pa, ik vind het erg bijzonder om je in de oppositie voor me te zien.

Henk Hilderink, mijn soulmate. Deze ‘grote kleine smurf’ heeft haar boekje af. Ik ben ook trots op mij. Rotietje doen? *Rob van der Mark*, je hebt lange tijd mijn bloed, zweet, tranen, vreugde en opluchting gedeeld en weet daardoor waarschijnlijk als geen ander wat dit proefschrift mij heeft gekost, maar vooral wat het voor mij betekent. Last but not least, *Ronald de Bruijne*. Waar twee watermannen met schorpioen ascendant elkaar vinden, worden ‘bommetjes’ gedropt. Je hebt het allerlaatste proefschriftstaartje ervaren. We kunnen elkaar nu ook eens overdag zien. Het is allemaal goed. Dus...?

Joan

PROLOGUE

1
2
3
4
5
6

Burnout among teachers: a flickering flame

"I was in a classroom with 36 kids; it was the smallest class in school. They kept promising all year that they would give us one of those outdoor classrooms, and it never came." Baer is the kind of person you would think any school system would love to have teaching for them - young, bright, full of ideals and passion. "I just wanted to help the disadvantaged," he says. "That's pretty much the only reason I went to teacher's college." Less than a year later, he quit, worn down, he says, by a system of politicians, school administrators, and even parents who undermined his best efforts to teach." (Surpuriya & Jordan, 1997).

The situation described above is a typical example of how burnout can hit our most dedicated teachers. Burnout metaphorically refers to a condition of work related fatigue, which develops after an extended period of job stress. Burned out teachers experience a depletion of their emotional resources (emotional exhaustion), develop indifferent and negative attitudes toward their students (depersonalization) and perceive themselves as less effective in their work (reduced personal accomplishment). In this thesis, it is assumed that a disturbed balance between investments in and outcomes from a work relationship enhance the development of burnout. Stated differently, teachers who invest more in their work than gain from it are more prone to burnout. Before elaborating on this issue in more detail, we will start with a general introduction of the problems in today's teaching profession.

Teacher well-being

Teaching used to be considered a respectable job. Today, it has lost its appeal to many potential newcomers. On top of that, an increasing number of teachers quit their jobs through frustration, many of them with physical and/or psychological health complaints. It is suggested that psychological complaints are one of the most important contributing factors to absenteeism, turnover and disability among teachers. The most recent statistics of the Dutch Central Bureau of Statistics (CBS), show that sick leave percentages in the teaching profession increased from 6.6 per cent in 1993 to 7.2 per cent in 1997 (CBS, 1997). Data also indicates that mental health complaints are by far the main reason for teachers leaving their profession. To date, the percentage of teachers that left their profession due to mental disorders has increased by 10 percent in three years, from 32.7 percent in 1997 to 42.7 percent in 2000 (USZO, 2001). In a longitudinal study conducted by Taris, Schaufeli, Schreurs, and Caljé (2000) it was found that teachers who had elevated burnout scores during the first study still had high burnout levels one year later, indicating that once burn out hits you it may take a long time to recover from it.

It is assumed that burnout plays an important role in the aetiology and development of mental health complaints among teachers. For instance, Greenglass, Burke and Ondrack (1990) state that teacher burnout is positively related to self-reported indices of personal distress, including depression, anxiety, and somatization. Moreover, Belcastro, Gold and Grant (1982) found that teachers with burnout differed in their pattern of somatic complaints and illnesses, compared to other teachers. Interestingly, most burnout victims had developed migraine or depression after entering their profession.

It is expected that the psychological health condition of teachers will deteriorate further in the near future because they will be forced to do more work with fewer resources, while at the same time receiving fewer rewards and less recognition for their efforts (see, Bronneman-Helmers & Taes, 1999; Klein Hesselink, Halewijn & Simons, 2001). Several factors can account for this. In recent years, the Dutch school system has been flooded with a number of developments, such as demographical changes (e.g., ageing population, growing multi-cultural society), changing social conditions (e.g., overly demanding parents and students, increasing number of students with a different cultural background), continuous political involvement, and an inadequate transition from a state controlled to a market strategy.

Dutch authorities have predicted that with the increasing outflow of teachers and limited inflow of novices, a serious teacher shortage in the near future can be expected. Recent estimates show that in the next 10 years the Netherlands will require an annual number of 8500 primary school and 5500 secondary school teachers to comply with the needs of the market (Ministerie ocw, 1999). Newspaper headlines sketch today's problems in the teaching sector: "Ill teachers cost the state billions" (De Telegraaf, December 21st 2000), and "More and more lessons cancelled due to sick leave and teacher shortage" (De Volkskrant, December 23rd 2000). Apart from severe personal losses, the financial costs in the teaching sector that are involved with work related mental disorders are 22 percent higher than costs in other sectors (Van Vuuren, Smit, Van Gent, & Andriessen, 2001).

In order to prevent the expected teacher shortage from deteriorating, additional measures have been proposed to support the current system of recruiting, training, and (re)placing teachers. Apart from the re-employment of teachers who previously left the field (re-employees) and the recruitment of qualified teachers from neighbouring countries like Germany and Belgium, one of the top items on the political agenda is the recruitment of college and university graduates from other disciplines ('lateral inflow') on the pretext that: "It is better to have somebody in front of the class than nobody at all". These novices are trained on the job and receive their teaching qualifications within two years (Tichelaar, 1999). Despite of the administrative measures that

have been taken and the advice given on how to stay healthy on the job, it is claimed that teachers take the lead with regard to burnout, with 17 percent in comparison to 10 to 12 percent of employees in other sectors (Onderwijsblad, 2000).

It was against this background that the studies reported in this thesis, of which, three sets of research questions form the basis, were conducted. The first two sets of questions deal with measurement issues and focus on the reliability and validity of the burnout and reciprocity measures used in this thesis. In the third set of questions, the relevance of social exchange processes in the development of burnout among teachers is examined. Each set of questions will be introduced in a separate paragraph.

The measurement of burnout among teachers

A central issue in burnout research was and still is the development of a valid and reliable instrument for defining and measuring burnout. The early burnout literature, mainly written by practitioners who recognized the symptoms among their own patients or clients, typically lacked a clear and empirically founded definition of burnout (Maslach & Schaufeli, 1993). As a result, the diversity of causes, consequences, symptoms, and definitions of burnout has contributed to the confusion about the specificity of the syndrome.

Questions arose as to whether burnout was a truly new phenomenon and how burnout could be distinguished from other psychological constructs such as job stress, depression, and job dissatisfaction. The conceptual overlap of depression and job satisfaction with burnout is only partly confirmed in empirical studies. Depression is considered more pervasive and burnout more situation specific (i.e., job-related) (see, Freudenberg, 1974; Warr, 1987; Bakker, Schaufeli, & Van Dierendonck, 2000). In their review on the historical and conceptual development of burnout, Maslach and Schaufeli (1993) elaborated on this issue fairly extensively and argued that - despite the fact that there are no sharp boundaries between burnout and the aforementioned other constructs - a relative distinction can be made when the constructs are placed within a time frame or when considered from a multi-dimensional perspective. In this thesis, burnout among teachers is studied within a broader framework of well-being. A multi-dimensional model of teacher well-being has been developed, including various aspects of well-being such as cognitive fatigue and psychosomatic health complaints.

Continuous criticism finally resulted in the development of standardized burnout measurements such as the Maslach Burnout Inventory – Human

Services Survey (MBI-HSS, Maslach & Jackson, 1986) and the Tedium Measure (TM, Pines, Aronson, & Kafry, 1981), that provide researchers with more precise definitions and methodological tools to study the phenomenon (for a review see Schaufeli, Enzmann, & Girault, 1993). At the same time, an American teacher version of the MBI-HSS was developed (MBI-ES, Maslach & Jackson 1986, 1996) and translated into a Dutch equivalent, MBI-NL-ES (Schaufeli, Daamen, & Van Mierlo, 1994).

On a broader scale, the increasing number of teachers with psychological health complaints (e.g., burnout) resulted in the publication of scientific and popular literature in which the causes and consequences of these complaints were the central themes. From our own review of the burnout literature (see Van Horn, Caljé, Schaufeli, & Schreurs, 1997) it appeared that psychological health complaints (e.g., burnout) are related to demographic and work related factors, with burnout occurring more frequently among, for instance, female teachers, older and more experienced teachers, secondary school teachers and teachers with a structural work overload combined with insufficient autonomy. However, there is a difference between results obtained in North-American studies and those from Dutch studies on burnout among teachers. For example, in The Netherlands, burnout is more prevalent among older and more experienced teachers, whereas in North American studies it is usually found that younger and less experienced teachers show higher burnout levels. These differences were confirmed in more recent studies (see, Klein Hesselink, Halewijn & Simons, 2001; Van Dick & Wagner, 2001). As no direct cross-national comparison studies have been carried out, burnout among Canadian and Dutch teachers is examined in this thesis.

Research question 1

- A. Is the basic three-dimensional burnout construct (i.e., tapping emotional exhaustion, depersonalization, and reduced personal accomplishment) adequately represented with the Dutch survey for Educators (MBI-NL-ES)?
- B. How does burnout relate to other aspects of teacher well-being, such as organizational commitment, aspiration, and social functioning?
- C. Do burnout scores among Canadian teachers differ from burnout scores among Dutch teachers, regarding various demographic (age and gender) and work-related factors (type of school, teaching experience, number of hours employed)?

The measurement of reciprocity among teachers

In this thesis, students, colleagues and the school are considered relevant partners in the exchange relationships teachers maintain at work (see

Huberman & VandenBerghe, 1999). The key assumption in equity theory (Adams, 1965) is that people strive for a balanced exchange of investments and outcomes in a social exchange relationship. Adams' definition of equity can be specified according to the following formula (Adams, 1965, p181):

$$\frac{O_p}{I_p} = \frac{O_a}{I_a}$$

O_p = sum of the outcomes of Person
 I_p = sum of the inputs of Person
 O_a = sum of the outcomes of Other
 I_a = sum of the inputs of Other

Adams used the terms 'Person' and 'Other' to explain that people evaluate their relationships with others by assessing their own input-outcome ratio (I_p/O_p) against the input-outcome ratio of a comparison other (I_a/O_a). Inequity is experienced when people invest relatively more in an exchange relationship than they receive (under-benefited) compared to the investment and outcome-ratio of the comparison Other, or when their ratio of investments and outcomes exceeds that of others (i.e., they feel over-benefited). Although the latter seems counter-intuitive, many studies have provided support for its basic assumptions (for a review see Cropanzano & Randall, 1993). Situations of equity are rare and most researchers have concentrated on the consequences of inequity, in particular, inequity in which an individual feels under-benefited.

Whereas in equity theory it is assumed that people compare their input-output ratio with the ratio of another (hypothetical) party (social comparison), in this thesis, we follow Pritchard (1969) who states that the evaluation of investments and outcomes does not result from a comparison with another person's investments-outcome ratio. Instead, people use their own internal standards as a basis for comparison. The internal standard is based on both a person's past experience in exchange relationships and his/her knowledge of the 'market value' of various inputs. According to Pritchard, inequity in such a situation may be experienced when people evaluate their investments against their own outcomes. The process in which internal standards are used as a mean for evaluating investments against outcomes seems to be more applicable for teachers than the process in which the ratio of one's own investments and outcomes are compared with that of another. Teaching involves a rather solitary interaction between the individual teacher and his or her students. As a consequence, the availability of information about their colleagues' investments and outcomes is rather limited. Therefore, in evaluating their investments and outcomes, teachers

are more likely to use their own internal standards than the investment and outcome ratios of their colleagues. Throughout this thesis, the term 'reciprocity' will be applied to refer to the process in which internal standards are used as the basic mean to evaluate investments against outcomes.

Although the value of social exchange theory has been demonstrated in various settings, results are inconclusive as far as the measurement of equity is concerned. In some studies it is argued that the perception of equity depends on the subjective evaluation of relevant specific investments in, and outcomes from, a particular relationship (see Lujanski & Mikula, 1983), whereas in other studies no differences were found, using a detailed or global equity measure (see Prins, Buunk & VanYperen, 1993). In this thesis, reciprocity is measured at three levels:

- a detailed reciprocity measure in which multi-item scales of specific investments and outcomes form the base of a calculated investment-outcome ratioscore (specific index);
- a global reciprocity measure in which a single global investment item and a single global outcome item are used to calculate a investment-outcome ratioscore (global index);
- a reciprocity measurement in which the assessment of the ratio between investments and outcomes is integrated in one single item (self-rated index).

Research question 2

- A. How are the specific, global and self-rated measures of reciprocity interrelated?
- B. Which measure (specific, global or self-rated index) can be used best to study social exchange processes among teachers?

The relevance of social exchange processes in burnout among teachers In 1993, the first empirical studies emerged on the relevance of social exchange processes in burnout among human service professionals (Buunk & Schaufeli). According to the authors, equity theory provided a conceptual framework that advances our understanding of the role of social exchange processes in the development of burnout. Further empirical findings supported the idea that burnout is significantly related to discrepancies between one's own investments and outcomes (lack of reciprocity) in social exchange relationships at both interpersonal (see Van Dierendonck, Schaufeli & Sixma, 1994; Schaufeli, Van den Eynden & Brouwers, 1994) and organizational levels (see Schaufeli, Van Dierendonck, & Van Gorp, 1996).

As indicated, the relationships with students, colleagues and the school are considered relevant to teachers (see Huberman & VandenBerghe, 1999).

Pritchard (1969) argued that exchange relationships can be graded on a continuum which stretches from highly personal to highly impersonal. Based on this notion, it is assumed in the present thesis that the relationship with students is the most personal, the relationship with the school the least personal, with the relationship with colleagues taking a central position. According to Pritchard, people have greater sensitivity to discrepancies between investments and outcomes when the exchange relationship is more personal. Hence, lack of reciprocity will be experienced in the same order: lack of reciprocity in the relationship with students will be the most salient, lack of reciprocity in the relationship with the school will be the least salient.

Research question 3

- A. Is there any evidence to assume that students, colleagues and the school are relevant exchange parties to teachers, with the relationship with students being the most salient and the relationship with the school the least?
- B. Are social exchange processes in the relationships of teachers with their students, colleagues and the school related to teacher burnout?
- C. What is the causal relation between lack of reciprocity and burnout and other health consequences among teachers?

Outline of this thesis

This thesis is outlined as follows:

In **Chapter 1**, the Dutch survey for Educators (MBI-ES-NL) is validated and norm scores are presented for teachers, regarding various demographical (i.e., age and gender) and work related (i.e., teaching experience, number of hours employed, type of school) factors.

In **Chapter 2**, scores on burnout among Dutch teachers are compared to those among Canadian teachers.

In **Chapter 3**, a five-dimensional model of well being (including burnout) is developed and tested against various alternative models of well-being.

In **Chapter 4**, specific, global and self-rated indices of reciprocity are validated.

In **Chapter 5**, the relevance of burnout as it relates to social exchange processes is investigated in a cross-sectional study.

In **Chapter 6**, the generic and specific psychological health consequences are examined of an imbalanced exchange of investments and outcomes in a longitudinal study.

In closing, the most salient findings of each study are summarized and discussed in the general discussion. Directions for future research and practical implications are also discussed.

REFERENCES

- Adams, J.S. (1965). Inequity in social exchange. *Advances in Experimental Social psychology*, 2, 267-299.
- Anderson, N.H. (1976). Equity judgment as information integration. *Journal of Personality and Social Psychology*, 33, 291-299.
- Bakker, A., Schaufeli, W., & Van Dierendonck, D. (2000). Burnout: prevalentie, risicogroepen en risicofactoren. In Houtman I.L.D., Schaufeli, W.B., & Taris, T.W. (Eds.) *Psychische vermoeidheid en werk: cijfers, trends en analyses* (pp. 65-82). Alphen a/d Rijn: Samsom.
- Belcastro, P.A., Gold, R.S. & Grant, J. (1982). Stress and burnout; Psychofysiological effects on correctional teachers. *Criminal Justice and Behavior*, 9, 387-395.
- Bronneman-Helmers, H.M., & Taes, C.G.J. (1999). Scholen onder druk: de taak van de school in een veranderende samenleving. [Schools under pressure] Den Haag: Sociaal en Cultureel Planbureau.
- Centraal Bureau voor de Statistiek (CBS) (1997). Ziekteverzuim Overheid [Absenteeism Government]. Heerlen: CBS
- Commissie Toekomst Leraarschap (1993). Een beroep met perspectief: De toekomst van het leraarschap. [A profession with prospect: the future of teaching professions] Commissie Toekomst Leraarschap (Ministerie van onderwijs en Wetenschappen, Zoetermeer). Leiden: Distributiecentrum DOP.
- Cropanzano, R. & Randall, M.J. (1993). Injustice and work behavior: a historical review. In: R. Cropanzano, (Ed.), *Justice in the workplace, approaching fairness in human resource management* (pp. 3-20). Hillsdale, N.J.: Lawrence Erlbaum Associates, publishers.
- Dick, R. van & Wagner, U. (2001). Stress and strain in teaching: A structural equation approach. *British Journal of Educational Psychology*, 71, 243-259.
- Freudenberg, H.J. (1974). Staff burnout. *Journal of Social Issues*, 30, 159-165.
- Greenglass, E.R., Burke, R.J. & Ondrack, M. (1990). A gender-role perspective of coping and burnout. *Applied Psychology*, 39, 5-27.

- Geurts, S.A., Schaufeli, W.B., & Buunk, B.P. (1993). Social comparison, inequity, and absenteeism among busdrivers. *European Work and Organizational Psychologist*, 3, 191-203.
- Hatfield, E., Traupman, J., Sprecher, S., & Hay, J. (1985). Equity and intimate relations: Recent research. In: W. Ickes (Ed.). *Compatible and incompatible relationships* (pp. 309-321). Oxford: Pergamon Press.
- Horn, J.E., van, Caljé, D.G., Schreurs, P.J.G., & Schaufeli, W.B. (1997). Stress en burnout bij docenten: Een literatuuroverzicht [Stress and burnout among teachers: A review of the literature]. *Gedrag & Organisatie*, 5, 247-256.
- Klein Hesselink, J., Halewijn, I., & Simons, J. (2001). Onderwijs en gezondheidszorg in de knel [Teaching and health care trapped]. In J. Houtman, P.G.W. Smulders, & J. Klein Hesselink. *Trends in arbeid 2001 [Trends in labour 2001]*. pp219-289. Alphen a/d Rijn: Samsom.
- Lujansky, H. & Mikula, G. (1983). Can equity theory explain the quality and the stability of romantic relationships? *British Journal of Social Psychology*, 22, 101-112.
- Maslach, C. & Jackson, S.E. (1986). *Maslach Burnout Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Jackson, S.E., & Schwab, R.L. (1996). *Maslach Burnout Inventory – Educators Survey (MBI-ES)*. In C. Maslach, S.E. Jackson, & M.P. Leiter, *MBI Study* (3d ed). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C. & Schaufeli, W.B. (1993). Historical and Conceptual Development of Burnout. In: W.B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional Burnout: Recent developments in theory and research*. (Pp 1-16). Washington, DC: Taylor & Francis.
- Ministerie OC en W. (13 april 1999). Krachtenbundeling bij leraarschap. [Concentration of strenght in teaching] *Persbericht*, 42.
- *Onderwijsblad* (2000). Werkdruk fors gestegen [work load increased]. 2 december.
- Pines, A., Aronson, E., & Kafry, D. (1981). *Burnout: from tedium to personal growth*. New York: The Free Press.
- Prins, K.S., Buunk, B.P., & Van Yperen, N.W. (1993). Equity, normative disapproval and extramarital relationships. *Journal of Social and Personal Relationships*, 10, 39-53.

- Pritchard, R.D. (1969). Equity Theory: A review and critique. *Organizational Behavior and Human performance*, 4, 176-211.
- Schaufeli, W.B., Enzmann, D., & Girault, N. (1993). Measurement of burnout: a review. In: W.B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: recent developments in theory and research* (pp. 199-215). New York: Hemisphere.
- Schaufeli, W.B., Daamen, J.R.H., & Mierlo, J.A.J. van (1994). Burnout among Dutch teachers: An MBI validity study. *Educational and Psychological Measurement*, 54, 803-812.
- Surpuriya, T., & Jordan, M. (1997). *Teacher burnout*. Memphis Flyer: News & Opinion, 27 October.
- Taris, T., Schaufeli, W.B., Schreurs, P., & Caljé, D. (2000). Opgebrand in het onderwijs: stress, psychische vermoeidheid en ziekteverzuim onder leraren. [Burnout among teachers: stress, mental fatigue en sick leave] In I.L.D., Houtman, W.B., Schaufeli, T., Taris. *Psychische vermoeidheid en werk. [Mental fatigue and work]* Alphen a/d Rijn: Samsom.
- Tichelaar, J. (1999). Onbevoegd lesgeven. *Brief aan het hoofdbestuur van de Algemene Onderwijsbond (AOB)*. 26 maart.
- USZO (2001). Wettelijke ArbeidsOngeschiktheids-uitkering (WAO). Onderwijs en Wetenschappen. [Disability insurance: Education and sciences] Heerlen: USZO
- VanDierendonck, D., Schaufeli, W.B., & Buunk, B.P. (1996). Inequity among human service professionals: measurement and relation to burnout. *Basic and Applied Social Psychology*, 18, 429-451.
- Van Vuuren, C.V., Smit, A.A., Gent, M.J. van, & Andriessen, S. (2001). Preventie en reïntegratie in de sector zorg en welzijn. [Prevention and reintegration in the health care sector] Den Haag: Organisatie voor Strategisch Arbeidsmarktonderzoek.
- Warr, P.B. (1987). *Work, unemployment, and mental health*. Oxford: Oxford University Press.

- Horn, J.E. van & Schaufeli, W.B. (1998). Maslach Burnout Inventory: The Dutch Educators Survey (MBI-NL-ES) Psychometric evaluations. Manual (unpublished manuscript). Utrecht University: Department of Social and Organizational Psychology

MASLACH BURNOUT INVENTORY

The Dutch Educators Survey (MBI-NL-ES)
PSYCHOMETRIC EVALUATIONS

SUMMARY

The present study¹ examines the psychometric quality of the Dutch version of the Maslach Burnout Inventory for Educators, the MBI-NL-ES. Results are presented on the factorial validity, internal consistency and test-retest reliability, intercorrelations between subscales, discriminant, construct, and predictive validity. The reliability of the depersonalization scale had been improved by adding two items. Overall, it can be concluded that the MBI-NL-ES is a valid and reliable instrument for studying burnout among Dutch teachers. Moreover, normative burnout scores for gender, age, type of school, number of hours employed, and teaching experience were also assessed, allowing comparison between sub groups. Furthermore, reference data are available for both individual as well as group diagnostic purposes. That is, levels of individual and group scores can be compared to normative scores from teachers on sick leave and teachers who are working.

INTRODUCTION

Burnout is a concept used to characterize a reaction to long-term stress, which is specifically linked to the emotional strain of working frequently and intensively with other people. Particularly, it seems that professionals working in human services (e.g., nurses, physicians, social workers, and teachers) are vulnerable to burnout (Maslach, 1982)². The most widely accepted conceptualization of burnout is found in the work of Maslach

¹ This chapter was written prior to the publication of the Dutch burnout manual in 2000 (Schaufeli & Van Dierendonck, 2000). The present research was based on a larger sample of teachers than used in the Dutch manual. In general, results obtained in the Dutch manual correspond with those presented in this chapter.

² Although burnout was exclusively studied among human service professionals, the burnout syndrome had also been recognized among employees other than human service employees. A general version of the MBI was developed that is applicable in a variety of work settings, regardless of whether these involve clients (Schaufeli, Leiter, Maslach, & Jackson, 1996). The rationale is that the structure of burnout is identical for all professions, however it manifests in a specific form among human service professionals (e.g., a depersonalized attitude toward others).

and Jackson (1986). They consider burnout as a symptom of emotional exhaustion, depersonalization and reduced personal accomplishment. Of these three dimensions, Emotional exhaustion comes closest to an orthodox reaction to stress (Maslach & Schaufeli, 1993). Emotional exhaustion refers to a depletion of an individuals emotional resources and the feeling that the individual has nothing left to give to others psychologically. Depersonalization is described in terms of the development of indifferent and negative attitudes towards others. It is assumed that human service professionals distance themselves from the people they work with in order to cope with their feelings of emotional exhaustion. The third dimension of burnout involves a negative evaluation of personal accomplishments in working with other people. Individuals perceive themselves as being less effective in their job.

Maslach and Jackson (1986, 1996) based their self-report questionnaire, the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), on these three dimensions. Based on the MBI-HSS, a version was developed to measure teacher burnout (MBI-Educator Survey; Maslach, Jackson, & Schwab, 1996). Although some items have been slightly modified, the MBI-ES measures the same three dimensions, emotional exhaustion, depersonalization and personal accomplishment. Modifications concern the substitution of the term ‘recipients’ for ‘students’ (e.g., “I don’t really care what happens to some students”), since in the teaching profession students are the teachers’ recipients.

The MBI-HSS and the MBI-ES were both translated into Dutch, resulting in two equivalents, namely the MBI-NL (Schaufeli & Van Dierendonck, 1993) and the MBI-NL-ES³ (Schaufeli, Daamen, & Van Mierlo, 1994), respectively. Results on the factorial validity of the MBI-NL (Schaufeli & Van Dierendonck, 1993) showed that item 12 from the personal accomplishment subscale (“I feel very energetic”) was a somewhat weak and ambiguous item, loading on the emotional exhaustion factor as well. To a somewhat lesser degree the same applies to the emotional exhaustion item 16 (“Working with people puts too much strain on me”) that also loads significantly on the personal accomplishment factor. Similar results have been obtained in other exploratory validity studies (e.g., Koeske & Koeske, 1989; Byrne, 1993; Enzmann, Schaufeli, & Girault, 1995). It has been recommended by the latter authors that item 12 and 16 should be removed from the questionnaire. In agreement with these results, items 12 and 16 were also removed from the questionnaire in the MBI-NL-ES, resulting in a twenty item version subscaled in emotional exhaustion (EE, 8 items), Depersonalization (DP, 5 items) and personal accomplishment (PA, 7 items). Schaufeli, et al. (1994) studied the factorial validity of the MBI-NL-ES and they compared the fit of four plausible factor-analytic models. Results indicated that the original three-factor

³ Initially, the MBI-NL-ES was referred to as the MBI-NL-Le or MBI-NL-Ed.

model fitted the data best. Similar results were found in factor analytic studies by, for instance, *Byrne (1994)* with the MBI-ES.

Second-order factor analyses were also conducted by *Schaufeli et al. (1994)* to assess the discriminant validity of the MBI-NL-ES subscales (emotional exhaustion, depersonalization, and personal accomplishment) using indicators of psychological strain (including depression and anxiety), and a variety of psychosomatic complaints (e.g., stomach and heart complaints). Two components emerged from these analyses: 1) a relatively strong and specific MBI burnout component and 2) a somewhat weaker general strain component that includes less specific mental and somatic complaints. Based on the results from these second-order factor analyses, two conclusions were drawn. First, burnout can be distinguished from self-reported psychological strain as well as from somatic complaints. However, it should be noted that emotional exhaustion is also related to these more general symptoms. This finding agrees with results obtained with the Dutch version of the MBI (MBI-NL) (*Schaufeli & Van Dierendonck, 1993*). Second, burnout is characterized by a combination of stress-related symptoms (emotional exhaustion) and dysfunctional attitudes (depersonalization and reduced personal accomplishment).

Prior results concerning the validity of the MBI-NL-ES (*Schaufeli et al., 1994*) were based on a relatively small sample of teachers. In this study, the analyses conducted by *Schaufeli et al. (1994)* are replicated (e.g., factorial and discriminant validity) and results of additional analyses are presented regarding the psychometric qualities of the revised version of the MBI-NL-ES, including norm tables for several demographic and work related factors.

Burnout, demographic, and work-related factors

It has been shown in studies among teachers that burnout is significantly related to particular demographic variables (gender and age) (e.g., *Greenglass, Burke & Ondrack, 1990; Friedman, 1991; Van Poppel & Kamphuis, 1992*) as well as to work-related factors (teaching experience, type of school, and the number of hours employed) (e.g., *Russell, Altmeier, & Van Velzen, 1987; Van Ginkel, 1987; Friedman, 1991*). However, different results are obtained in North-American and Dutch studies on teacher burnout (for further details see Chapter 2). North-American data indicate that male teachers report higher scores on depersonalization, whereas female teachers report higher scores on emotional exhaustion (*Russell, et al., 1987; Greenglass, et al., 1990*). Slightly different results are found among Dutch teachers, where feelings of emotional exhaustion are significantly higher in men (*Van Ginkel, 1987*). Similar to North-America, males score higher on depersonalization than females.

Several studies report on the relevance of age in the study of burnout among teachers. However, in both Dutch and North-American studies it is suggested that experience in teaching, rather than age, is more strongly related to burnout. In North-America, researchers generally conclude that younger teachers are more vulnerable to burnout than older teachers (*Friedman, 1991*). In contrast, findings from The Netherlands suggest that more experienced teachers, rather than less experienced teachers, run a greater risk of burning out (*Van Ginkel, 1987*). The longer they work as a teacher, the more they become emotionally exhausted. This suggests a process of gradually wearing out. No valid explanations are given for these differences.

Some studies show a significant relation between burnout and type of school: burnout seems to be more prevalent among secondary than among elementary school teachers (*Russell, et al., 1987*). *Gold and Grant (1993)* argued that secondary school teachers are more burned out because, compared with students from elementary schools, secondary school students are less interested and more difficult to motivate. In several studies (e.g., *Van Ginkel, 1987; Friedman, 1991*) it was found that full-time teachers report higher scores on emotional exhaustion than part-time teachers. Full-time teachers have less time to spend on other activities outside work, therefore it is not surprising that they have fewer opportunities to rest and replenish their energy resources.

It has repeatedly been demonstrated that tensions in the work relationships with students, colleagues, and the school are important causes of teacher stress (*Hart, 1987*). In particular, tensions in the relationship with students are found to be caused by, for instance, disciplinary problems, students' demotivation and misbehavior (*Hodge, Jupp & Taylor, 1994; Boyle, Borg, Falzon & Baglioni, 1995*). In the relationships with colleagues and the school, tensions are said to be evoked by, for instance, lack of appreciation and support (*Brown & Ralph, 1992; Smith & Bourke, 1992; Travers & Cooper, 1993*).

As already indicated briefly, in the present study the MBI-NL-ES is (re)validated. A variety of analyses were conducted to provide information about the following psychometric properties of the MBI-NL-ES: factorial validity; internal consistency and the test-retest reliability; intercorrelations of subscales; subscales mean and standard deviations; discriminant validity; construct validity; predictive validity, and normative burnout scores for gender, age, type of school, number of hours employed, and teaching experience.

METHOD

Sample descriptions

Table 1 presents a description of demographic features of the total sample (N=3247). Data presented in this study are derived from six samples, A to F and an additional sample of teachers on sick leave. A short description of these studies is presented below.

Sample A. Several studies were conducted in different schools located in and around Utrecht, The Netherlands. The total sample consists of 659 teachers (response rate 73%) employed in one secondary school (N=74), four vocational schools (N=341), five elementary schools (N=103) and three special education schools (N=114).

Sample B consisted of a sample of 286 teachers from the northern and southern part of The Netherlands (response rate 45%) employed in two secondary schools (N = 80), thirty-one primary schools (N=152), and 4 special education schools (N=54).

Sample C. A longitudinal study was set out in the eastern part of The Netherlands among 545 teachers from four secondary schools. 274 teachers participated in the study (response rate 50%). In the follow-up 12 months later 214 teachers returned the questionnaire (response rate 33%) of which 136 teachers participated both in 1996 and 1997.

Sample D. Questionnaires were sent to 1000 teachers in the western part of The Netherlands. 270 teachers from secondary (N=92), vocational (N=103), and primary (N=75) schools participated in the study. The response rate was 27%.

Sample E. A questionnaire was sent to a randomly selected sample of 3000 teachers derived from the files of the National Insurance Board. 1125 teachers from secondary (N=249), vocational (N=220), primary (N=547), and special education (N=109) schools completed the questionnaire (response rate 38%). The follow-up was conducted 12 months later. From the 1308 returned questionnaires, 998 teachers had completed the questionnaire in both 1997 and 1998 (response rate 76%).

Sample F. Sample F is a composite sample of three independent studies conducted in 1995 and 1996. The sample consists of eight secondary (N=378) and five vocational schools (N=255) in various Dutch regions. Response percentages ranged from approximately 35% to 75%.

Sample of teachers on sick leave

In addition to the pooled sample consisting of sample A to F, a separate sample of teachers on sick leave has been included in the current study. About 700 questionnaires were sent to 10 Occupational Health and Safety Services throughout The Netherlands with the request to send them to teachers who were on sick leave for mental reasons. Burnout is not an officially recognized diagnosis, but the vast majority of mental health claims involves what is known as an ‘exogenous reaction’, which roughly equals burnout (Kers & Van der Zouwe, 1994). The questionnaire was completed by 147 teachers.

Measurements

Burnout. Burnout is measured with the MBI-NL-ES and consists of three subscales: emotional exhaustion, depersonalization, and personal accomplishment. The MBI-NL-ES differs from the MBI-ES in two ways. First, the scoring dimension in the MBI-NL-ES ranges on a 7-point Likert scale from 0 to 6 instead of 1 to 7. Second, in the MBI-NL-ES two frequency dimensions were simultaneously applied to the questionnaire (see Appendix). The so called *fixed* anchor is similar to that of the MBI-ES: ‘never’ - ‘few times a year or less’ - ‘few times a month or less’ - ‘few times a month’ - ‘once a week’ - ‘few times a week’ - ‘every day’. The so called *variable* anchor ranges from ‘never’ - ‘seldom’ - ‘now and then’ - ‘regular’ - ‘often’ - ‘very often’ - ‘always’. This additional scoring dimension was applied because its scoring dimension semantically corresponds better with some items (e.g., “I have become more callous toward people since I took this job”).

Depersonalization has been identified as the least reliable subscale (Enzmann, *et al.*, 1995). To strengthen the validity of the depersonalization scale and to increase its internal consistency, it has been recommended to add a couple of items about the behavioral aspect of depersonalization (Enzmann, *et al.*, 1995). Following this suggestion, two items were added to the depersonalization scale: “In my work people bother me with personal problems that I don’t want to be bothered with”, and “I try to keep away from the personal problems of my students”. The extended depersonalization scale (DP_{ext}) was included in studies C, D, and E. Items of the MBI-NL-ES are included in the appendix.

In the American study, scores on the MBI subscales emotional exhaustion, depersonalization, and personal accomplishment are based on the summation of item scores in each subscale. In the MBI-NL-ES the sum score of each subscale is divided by the number of items in that subscale. In the norm tables these mean scale scores are used instead of sum scores, since their

■ **TABLE 1****DEMOGRAPHIC CHARACTERISTICS**

	TOTAL SAMPLE (N=3295)		SECONDARY TEACHERS (N=1094)		VOCATIONAL TEACHERS (N=972)			PRIMARY TEACHERS (N=877)		SPECIAL TEACHERS (N=277)		TEACHERS ON SICK LEAVE (N=147)		
	N	%	N	%	N	%		N	%	N	%	N	%	
GENDER														GENDER
Men	1736	52.7	720	66.9	595	62.0		262	30.0	107	38.6	70	48.6	Men
Women	1523	46.3	356	33.1	364	38.0		610	70.0	170	61.4	77	52.4	Women
Total	3259	100.0	1076	100.0	959	100.0		872	100.0	277	100.0	147	100.0	Total
AGE														AGE
Mean	44	—	45	—	44	—		42	—	41	—	47	—	Mean
SD	8.07	—	8.01	—	7.52	—		8.35	—	7.90	—	8.46	—	SD
AGE GROUPS														AGE GROUPS
≤ 39	997	30.5	267	24.7	264	27.4		333	38.2	124	44.3	24	16.4	≤ 39
40-44	706	21.6	222	20.5	202	22.0		195	22.3	63	22.7	23	15.8	40-44
45-49	764	23.4	253	23.4	255	26.0		187	21.4	49	18.2	33	22.6	45-49
≥ 50	804	24.5	340	31.4	243	24.6		158	18.1	41	14.8	66	45.2	≥ 50
Total	3271	100.0	1082	100.0	964	100.0		873	100.0	277	100.0	147	100.0	Total
WORK EXPERIENCE (YRS.)														WORK EXPERIENCE (YRS.)
Mean	17	—	17	—	17	—		18	—	16	—	21	—	Mean
SD	8.70	—	9.16	—	8.59	—		8.32	—	8.17	—	8.83	—	SD
CATEGORIES														CATEGORIES
≤ 9	683	21.7	248	23.0	235	5.1		153	17.6	38	19.9	55	37.4	≤ 9
10-19	1166	37.1	386	35.7	324	34.6		346	39.9	85	44.5	49	33.3	10-19
≥ 20	1300	41.2	446	41.3	377	40.3		370	42.5	68	35.6	43	29.3	≥ 20
Total	3148	100.0	1080	100.0	936	100.0		867	100.0	191	100.0	147	100.0	Total
HOURS EMPLOYED														HOURS EMPLOYED
Mean	28	—	27	—	26	—		31	—	32	—	32	—	Mean
SD	9.52	—	9.31	—	9.00	—		9.44	—	9.00	—	8.22	—	SD
EMPLOYMENT														EMPLOYMENT
Full time	1393	46.9	528	49.3	409	52.1		352	41.3	75	40.1	65	45.1	Full time
Part time	1574	53.1	544	50.7	376	47.9		500	58.7	112	59.9	79	54.9	Part time
Total	2967	100.0	1072	100.0	785	100.0		852	100.0	187	100.0	144	100.0	Total

Note: due to missing data, the total number of respondents may vary slightly for different variables.

interpretation is more straightforward (ranging from 0 to 6) and because a direct comparison between subscales is then possible. Demographic variables and work related factors are taken into account in describing the distribution of burnout scores.

Health indicators. Various health indicators were used to establish the discriminant validity of the three burnout dimensions. Job satisfaction. Teacher's satisfaction with work was measured using four items from the questionnaire 'Stress at School' (Schaufeli, Hoonakker, & Van Horn, 1996). Each item referred to the extent to which teachers were satisfied with their students, colleagues, the school and teaching in general, respectively. Response categories varied on a 5-point scale ranging from 'very dissatisfied' (1) to 'very satisfied' (5). The reliability coefficient was $\alpha = .68^4$.

Mood. Originally, the scale was developed by Warr (1990a; 1990b) and consists of 12 mood-items such as tensed, uneasy, optimistic, and cheerful. Teachers were asked to indicate, on a 5-point scale ranging from 'never' (1) to 'always' (5), how often their job had made them feel, for instance, optimistic during the past month. Concerning the presupposed bipolar dimension of these mood-items in a positive and negative affect, the present study follows the one-factor solution, resulting from a study by Taris, Schaufeli, Schreurs, & Caljé (2000) in a teacher sample. Reliability coefficient was $\alpha = .92$.

Mental and somatic health complaints were measured using the Dutch adaptation of the work stress questionnaire developed by Caplan, Cobb, French, Van Harrison, and Pinneau (1975); The 'Vragenlijst Organisatie Stress-Doetinchem' (VOS-D) (Bergers, Marcelissen & De Wolff, 1986). The VOS-D is one of the most widely used self-report questionnaires in The Netherlands to assess stress-reactions (e.g., psychological strain, somatic complaints) (Kompier & Marcelissen, 1990). Normative data are available from a large representative sample of Dutch employees (N = 2800). The subscale 'mental health complaints' consists of 10 items referring to anxiety (e.g., feeling nervous, uneasy), depression (e.g., feeling sad, dejected), and irritation (e.g., feeling angry, annoyed). The reliability coefficient was $\alpha = .87$. The subscale 'somatic health complaints' consists of 14 items referring to a variety of psycho-somatic complaints such as sweating palms, upset stomach, trouble sleeping, and a faster than usual heart beat. The reliability coefficient was $\alpha = .86$. Items of both scales had to be answered on a 4-point scale ranging from 'almost never' (1) to 'very often' (4).

Organizational commitment. Six items were drawn from the original 15 item Organization Commitment Questionnaire (OCQ) (Mowday, Steers, & Porter, 1979), each of which had to be answered on a 5-point scale ranging from 'totally disagree' (1) to 'totally agree' (5). The reliability coefficient was $\alpha = .89$.

Psychosomatic well-being was assessed using one scale. The **psychosomatic health complaints** scale consists of 23 items from the Inventory of Subjective Health (VOEG) (Dirken, 1969). The scale measures a variety of psychosomatic health complaints such as headaches, cardiovascular problems, and stomachaches. Response categories were dichotomous, 'yes' (1) and 'no' (2). The Central Bureau of Statistics in The Netherlands uses the VOEG units to measure the general health state. For reasons of comparability with their data, this total score will be maintained in the current study. The reliability coefficient was $\alpha = .83$.

Cognitive weariness was assessed using one scale. The **cognitive weariness** scale, a self-constructed scale, consists of 7 items. The scale refers to loss of concentration at work (e.g., "I have trouble concentrating on my work."). Each statement was rated on a 7-point scale ranging from 'a few times a year' (0) to 'every day' (6). The reliability coefficient was $\alpha = .92$.

Work stressors.

Five scales of the 'School Health Survey' (Schoolgezondheidsonderzoek, Centraal Orgaan Bedrijfsgezondheidszorg, CO BGZ 1994) were used to measure the experienced workload indicated by time pressure, teaching in general, and the work relationships with students, colleagues, and the school. Teachers had to indicate on a 6-point scale ranging from 'not applicable' (0) to 'very much' (5) to what extent they experienced work overload. The subscale 'time pressure' consists of 7 items (e.g., too much to do in too little time). The reliability coefficient was $\alpha = .87$. The subscale 'teaching in general' consists of 10 items (e.g., poor teaching material). The reliability coefficient was $\alpha = .83$. The subscale 'students' consists of 13 items (e.g., students' misbehavior, unmotivated students). The reliability coefficient was $\alpha = .93$. The subscale 'colleagues' consists of 10 items (e.g., incompetence of colleagues). The reliability coefficient was $\alpha = .91$. The subscale 'school' consists of 7 items (e.g., an unsupportive school principal). The reliability coefficient was $\alpha = .93$.

⁴ Internal consistency coefficients reported in the current study are based on data at Time 1.

Analyses

To examine the relationship between demographic (gender and age) and work related factors (type of school, teaching experience, and number of hours employed) and burnout, multivariate analyses of covariance (MANCOVA's) were conducted. Subgroups have been created in relation to age and teaching experience. Four more or less equally divided subgroups were distinguished for age: 1) 39 years or younger, 2) 40-44 years, 3) 45-49 years, 4) 50 and over. Teaching experience was categorized in three subgroups: 1) 9 years of experience or less, 2) 9-19 years, 3) 20 years or more. As for gender, male teachers were rated 0 and female teachers 1. With regard to type of school, secondary teachers were rated 1, vocational teachers 2, primary teachers 3, and special education teachers 4. As for the number of hours employed, full-time teachers were rated 0 and part-time teachers 1. Descriptive statistics for these demographic and work related factors are presented in Table 3.

RESULTS

A variety of analyses were conducted to provide information about the following psychometric properties of the MBI-NL-ES: factorial validity; internal consistency and the test-retest reliability; intercorrelations of subscales; subscales mean and standard deviations; discriminant validity; construct validity; predictive validity, and normative burnout scores for gender, age, type of school, number of hours employed, and teaching experience. Results of the MANCOVA's are also presented in each norm table.

Factorial validity

Using the EQS Structural Equations Program (Bentler & Weeks, 1980) confirmatory factor analyses were performed to test the factor structure of the MBI-NL-ES (including two additional DP-items). Table 4 presents the results of the comparison of the same four factor-analytic models that were tested by Schaufeli, et al. (1994). Because the χ^2 goodness-of-fit index strongly depends on sample size it has been recommended to report the nonnormed fit index (NNFI) (Bentler & Bonett, 1980). These indices do not provide information about the absolute fit of a particular model, rather they assess the relative fit to another (nested) factorial model of a particular sample. Moreover, these indices can be used to compare the fit of a particular model with that of a similar model in other samples of different sizes.

■ TABLE 2

CONFIRMATORY FACTOR-ANALYTIC MODELS (N=1629)

MODEL	df	χ^2	NNFI	GFI	AGFI	RMSR
Null (M ₀)	231	16922.32*	—	.32	.25	.550
1-Factor (M ₁)	209	6743.76*	.57	.63	.55	.209
2-Factor oblique (M ₂)	208	3521.89*	.78	.80	.76	.148
3-Factor orthogonal (M ₃)	209	2826.33*	.83	.86	.82	.292
3-Factor oblique (M ₄)	206	2135.33*	.87	.89	.86	.102

* $p = .001$

The so-called null model (M₀) is a baseline model of maximum independence between items (i.e., a model without a factor structure). The M₀ model corresponds to the hypothesis that there are just as many uncorrelated factors as there are items. The factorial models of the MBI-NL-ES with which M₀ is compared are less restrictive. The following four models are tested in the present study:

- M₁: A 1-factor model that assumes that all MBI-NL-ES items load on one single factor.
- M₂: A 2-factor oblique model, including a combined DP and EE factor (the so called “core of burnout” (Green, Walkey, & Taylor, 1991) and a separate PA factor in which the two factors are allowed to be correlated.
- M₃: A 3-factor orthogonal model used by Maslach and Jackson (1996), which assumes that the MBI-NL-ES items load on three uncorrelated factors (i.e., EE, DP, and PA).
- M₄: A 3-factor oblique model in which the three factors of M₃ are allowed to be correlated.

As can be seen from Table 2, the best relative fit of the four models is found for the 3-factor oblique model (M₄). More specifically, each model improves significantly upon each preceding model, $p = .001$. This confirms prior results on the factorial validity of the MBI-NL-ES (Schaufeli et al., 1994). A comparison between the 3-factor orthogonal model (M₃) and the 3-factor oblique model (M₄) results in a significant improvement of the latter ($\Delta\chi^2$ with 3 DF = 691.00, $p < .001$).

The M₄-model was also tested in different subsamples: gender, age, type of school, teaching experience and employment. As can be seen from Table 3 compared to the other models M₁, M₂, and M₃, the values of the fit indices of M₄ are higher in the various subsamples.

■ TABLE 3

3-FACTOR OBLIQUE MODEL (M4; $df = 206$) FOR THE SUBSAMPLES GENDER, AGE, TYPE OF SCHOOL, TEACHING EXPERIENCE AND EMPLOYMENT

GENDER	N	χ^2	NNFI	GFI	AGFI	RMSR
Male teachers	847	1416.10*	.86	.86	.82	.12
Female teachers	851	1150.42*	.88	.88	.86	.11
AGE						
≤ 39 yrs.	138	367.54*	.85	.81	.77	.13
40 – 44 yrs.	136	407.13*	.80	.78	.73	.17
45 – 49 yrs.	123	387.40*	.87	.77	.72	.15
≥ 50 yrs.	142	424.13*	.84	.79	.74	.17
TYPE OF SCHOOL						
Secondary school	592	1053.72*	.85	.85	.81	.13
Vocational school	355	714.20*	.84	.84	.80	.13
Primary school	620	854.32*	.88	.89	.86	.10
Special education	118	332.21*	.90	.80	.76	.14
TEACHING EXPERIENCE						
≤ 9 yrs.	125	345.76*	.85	.81	.76	.13
10 – 19 yrs.	193	442.32*	.85	.82	.78	.15
≥ 20 yrs.	225	564.67*	.84	.81	.77	.16
EMPLOYMENT						
Full time	830	1204.72*	.87	.88	.85	.11
Part time	836	1321.95*	.86	.86	.83	.12

* $p = .001$

Internal consistency and test-retest reliability

Table 4 displays the internal consistencies (Cronbach's α) of the MBI-NL-ES subscales for the total sample and the subsamples of teachers from secondary, vocational, primary, and special education schools.

Nunnally (1978) proposed a value of .70 as a criterion for a satisfactory internal consistency. With exception of the depersonalization subscale, the internal consistencies of emotional exhaustion and personal accomplishment are well above this criterion (Table 4). The internal consistencies of the Emotional Exhaustion and Personal Accomplishment subscales also agree with those mentioned for the MBI-HSS (EE: $\alpha = .90$, DP: $\alpha = .79$, PA: $\alpha = .71$) (Maslach & Jackson, 1996) and the MBI-ES (EE: $\alpha = .90$, DP: $\alpha = .76$, PA: $\alpha = .76$) (Maslach, et al., 1996). The elimination of item 16 in the EE-subscale and item 12 in the PA-subscale of the MBI-NL-ES obviously does not affect the internal consistency of both scales.

■ TABLE 4

INTERNAL CONSISTENCIES (CRONBACH'S α) OF THE MBI-NL-ES SUBSAMPLES*

	TOTAL SAMPLE (N=3198)	SECONDARY TEACHERS (N=1054)	VOCATIONAL TEACHERS (N=935)	PRIMARY TEACHERS (N=832)	SPECIAL TEACHERS (N=259)	TEACHERS ON SICK LEAVE (N=141)
EE	.90	.91	.88	.90	.89	.89
DP	.66	.66	.67	.57	.61	.63
PA	.82	.82	.78	.82	.77	.88
	(N=1496)	(N=590)	(N=321)	(N=610)	(N=109)	(N=141)
DP _{ext}	.72	.73	.74	.65	.71	.64

Note: EE = Emotional Exhaustion; DP = Depersonalization; PA = Personal Accomplishment.

* Teachers on sick leave are not included

As also can be seen from Table 4, internal consistencies of the burnout subscales are quite similar across subsamples of teachers. For emotional exhaustion and personal accomplishment, internal consistencies meet the criterion of $\alpha = .70$. This does not apply to the reliability of depersonalization. An extension of the depersonalization subscale (DP_{ext}) with two items increases the reliability in the total sample ($\alpha = .73$, $n = 1647$), and each of the subsamples. With exception of the primary school teacher sub sample the internal consistency of DP_{ext} in the other subsamples are satisfactory.

In Table 4 internal consistency coefficients of burnout subscales are presented for the sample of teachers on sick leave. As can be seen, the coefficients are comparable to those mentioned for the secondary, vocational, primary, and special education teacher samples.

To examine the stability of the MBI-NL-ES over time, test-retest reliabilities were computed for sample C. Test-retest reliabilities for EE, DP_{ext}, and PA were $r = .81$, $r = .65$, and $r = .72$ respectively over a 12 months period. For the American MBI-ES, test-retest reliabilities over a 12 months period were $r = .60$, $r = .54$, and $r = .57$, respectively (Jackson, Schwab & Schuler, 1986). For the MBI-NL-ES, comparable test-retest correlations were found in the American manual. Only the test-retest correlation for EE was significantly higher ($Z = 4.03$, $p = .05$) for the MBI-NL-ES.

Intercorrelations between burnout subscales

Pearson's correlations coefficients between MBI-NL-ES subscales are shown in Table 5. Z-values were computed in order to compare the magnitude of these correlations across groups.

■ TABLE 5

PEARSON'S CORRELATION COEFFICIENTS AND Z-SCORES BETWEEN THE MBI-NL-ES SUBSCALES AND SUBSAMPLES

	SECONDARY TEACHERS (N=1054)			VOCATIONAL TEACHERS (N=936)			PRIMARY TEACHERS (N=832)				SPECIAL TEACHERS (N=259)			TEACHERS ON SICK LEAVE (N=141)			TOTAL SAMPLE (N=3048)			
CORRELATIONS	PA	DP _{ext}	DP	PA	DP _{ext}	DP	PA	DP _{ext}	DP		PA	DP _{ext}	DP	PA	DP _{ext}	DP	PA	DP _{ext}	DP	CORR.
EE	-.34	.44	.50	-.27	.37	.35	-.22	.32	.45		-.23	.46	.37	-.20	.12	-.13	-.17	.42	.43	EE
PA	—	-.37	-.39	—	-.25	-.26	—	-.30	-.27		—	-.40	-.36	—	-.46	-.42	—	-.38	-.18	PA
Z-SCORES: EE											—	—	—	—	—	—	—	—	—	Z-SCORES: EE
Vocational	1.72	1.86	4.09*	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	Vocational
Primary	2.81*	3.03*	1.39	1.11	1.18	2.50*	—	—	—		—	—	—	—	—	—	—	—	—	Primary
Special	1.72	.36	2.31*	.60	1.54	.33	.15	2.32*	1.35		—	—	—	—	—	—	—	—	—	Special
On sick leave	1.67	3.89*	4.62*	.81	2.94*	2.57*	.23	2.30*	3.85*		—	—	—	—	—	—	—	—	—	On sick leave
Z-SCORES: PA											—	—	—	—	—	—	—	—	—	Z-SCORES: PA
Vocational	—	2.96*	3.24*	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	Vocational
Primary	—	1.70	2.90*	—	1.13	.23	—	—	—		—	—	—	—	—	—	—	—	—	Primary
Special	—	.51	.50	—	2.38*	1.57	—	1.60	1.40		—	—	—	—	—	—	—	—	—	Special
On sick leave	—	1.20	.40	—	2.65*	1.99*	—	2.04*	1.86		—	.70	.67	—	—	—	—	—	—	On sick leave

* $p \leq .05$

Overall analyses show a significant difference between the 5 subsamples concerning the intercorrelation between EE-DP (χ^2 with 4 df= 33.06, $p=.05$), EE-DP_{ext} ($\chi^2_4 = 22.67$, $p=.05$), and PA-DP_{ext} ($\chi^2_4 = 15.08$, $p=.05$). Intercorrelations between EE-PA (χ^2 with 4 df= 9.76, ns) and DP-PA ($\chi^2_4 = 15.62$, ns) were not significant. At subsample level, intercorrelations between EEand DPand DP_{ext} in particular are significantly higher in the secondary teacher sample, and lower in the sample of teachers on sick leave. Thus, in the secondary teacher sample, EE and DPare more closely linked than in the other subsamples. In the sample of teachers on sick leave these burnout dimensions are less interrelated.

Discriminant validity

In Table 6 intercorrelations are presented between the MBI-NL-ES subscales (emotional exhaustion, depersonalization, and personal accomplishment) and various health indicators such as mood (e.g., anger, depression), organizational commitment, satisfaction, and a variety of psychosomatic complaints (e.g., stomach and heart complaints).

As can be seen from Table 6, EE correlates highly with all indicators of well-being associated with feelings and health complaints, suggesting that the

■ TABLE 6

MEAN, SD, AND INTERCORRELATIONS BETWEEN BURNOUT AND VARIOUS INDICATORS OF WELL-BEING

	SATISFACTION	NEGATIVE MOOD	MENTAL HEALTH COMPLAINTS	PHYSICAL HEALTH COMPLAINTS	PSYCHO- SOMATIC HEALTH	ORGANIZA- TIONAL COM- MITMENT	COGNITIVE WEARINESS
N	1268	1634	280	283	1810	249	1631
M	3.66	2.45	1.84	1.88	1.78	4.42	1.40
SD	.68	.61	.50	.71	.19	.88	.99
EE	-.54*	.61*	.77*	.71*	-.52*	-.31*	.66*
DP	-.43*	.35*	.52*	.36*	-.19*	-.24*	.34*
PA	.48*	-.40*	.43*	.32*	.18*	.24*	-.32*

* $p \leq .001$. NB. High scores on Negative mood, Mental and Physical health complaints, and Cognitive Weariness indicate relatively more health complaints. High scores on Satisfaction, Psychosomatic health and Organizational commitment indicate a relatively higher level of well-being.

■ TABLE 7

MEAN, SD, AND INTERCORRELATIONS BETWEEN BURNOUT AND VARIOUS WORK STRESSORS

	STUDENTS	COLLEAGUES	SCHOOL	TIME PRESSURE	TEACHING
N	860	862	861	866	852
M	2.41	2.16	2.32	2.52	2.16
SD	.91	.78	1.06	.87	.70
EE	.43*	.35*	.31*	.55*	.57*
DP	.37*	.17*	.23*	.22*	.35*
PA	-.38*	-.05	-.05	-.17*	-.29*

* $p \leq .001$. NB. High scores on all work stressors indicate that teachers experience relatively more stress.

discriminant validity of this particular burnout dimension is relatively low. Regression analyses show that these well-being indicators account for 67 per cent of the variance in EE, with the psychological health complaints accounting for the highest variance ($R^2 = .59$). The indicators of well-being explained almost 30 per cent of the variance in DP, with the psychological health complaints explaining 26 per cent. As for PA, the 29 per cent of variance in this burnout dimension is explained, in particular, by satisfaction ($R^2 = .23$). These lower percentages of explained variance in DP and PA suggest that these burnout dimensions are more distinct dimensions in the range of possible health complaints.

Construct validity

Table 7 presents the intercorrelation of burnout with selected stressors that were found to be relevant in previous studies to enhancing feelings of burnout in the long run.

As can be seen from Table 7, stress due to teaching and the relationship with students are highly correlated with feelings of emotional exhaustion, depersonalization and a reduced personal accomplishment. These work related stressors are considered the most salient aspects of the teaching profession. Regression analyses show that these work related stressors accounted for 38 percent of the variance in EE, with teaching accounting for the highest variance ($R^2 = .30$). Students accounted for 15 of the total of 18 per cent variance in DP. As for PA, the work related stressor, students, was accountable for 16 per cent of the variance in this burnout dimension. Other work related stressors did not explain any variance in PA.

■ TABLE 8

ODDS RATIOS FOR BURNOUT (PREDICTORS) AND HEALTH STATUS

PREDICTORS	EXP (B)	95% CI	OVERALL STATISTICS
EE low ^R	1.00	—	-2 log likelihood: 318.42
mean	5.64*	1.61	$R^2 = 9.7$
high	11.66**	3.36	—
DP low ^R	1.00	—	—
mean	1.35	.54	—
high	1.21	.46	—
rPA low ^R	1.00	—	—
mean	1.26	.58	—
high	.96	.41	—

^R = reference group; * $p \leq .01$; ** $p \leq .001$.

Predictive validity

The predictive validity of the MBI-NL-ES was investigated using teachers from sample E who were healthy in 1997 and on sick leave in 1998 ($N=45$) and teachers who were healthy at both intervals ($N=853$).

Results from logistic regression analysis (Table 8) show that EE significantly predicts burnout. The risk to burnout is 5.64 and 11.66 times higher for teachers with average and high scores on EE, respectively.

Normative scores

Cut-off scores of the MBI-NL-ES

The American MBI study presents numerical cut-off points based on three equally sized groups, assuming that the top, intermediate, and bottom thirds of the sample experience 'high', 'average', and 'low' levels of burnout, respectively (Maslach & Jackson, 1996). Although the authors of the American MBI study emphasize that this classification should not be used for diagnostic purposes, many researchers tend to take this classification absolutely, that is, they consider 'high' levels as being burned-out. Following Schaufeli and Van Dierendonck (1995) the normative scores presented in the present study are based on a more refined classification using five percentile ranges (5th, 25th, 75th, and 95th percentile) (see Table 9). The validity of this categorization is supported by the finding that for the MBI-NL, mental strain, physical symptoms, as well as the proportion of identified psychiatric 'cases' (based in the General Health Questionnaire) increased linearly with

■ TABLE 9

SCORING-CATEGORIES OF THE MBI-NL-ES

SCORING-CATEGORIES	SCORES
Very high	score > 95 th percentile
High	75 th percentile < score ≤ 95 th percentile
Average	25 th percentile < score ≤ 75 th percentile
Low	5 th percentile < score ≤ 25 th percentile
Very low	score ≤ 5 th percentile

■ TABLE 10

NORM TABLE SAMPLES OF TEACHERS AT WORK AND TEACHERS ON SICK LEAVE

SCALE	M	SD	SE	5%	25%	75%	95%	N
EE								
Men	2.08	1.22	.03	.38	1.13	2.88	4.38	1702
At work	1.92	1.18	.21	.38	1.0	2.63	4.25	3211
On sick leave	3.84	1.23	.11	1.5	3.13	4.88	5.63	137
DP_{EXT}								
At work	1.26	.81	.02	.14	.57	1.71	2.86	1675
On sick leave	1.58	.85	.07	.29	.96	2.00	3.14	138
RPA								
At work	1.82	.91	.02	.43	1.14	2.43	3.43	3102
On sick leave	2.33	1.07	.09	.57	1.57	3.11	4.19	136
MULTIVARIATE F(3,1689)								
UNIVARIATE F(1,1691)								
EE								
DP								
rPA								
6.03 ***	17.08 ***			4.52*			.47	

*** p ≤ .001; ** p ≤ .01; * p ≤ .05

the severity of burnout (Schaufeli & Van Dierendonck, 1994). To establish the clinical and predictive validity of the MBI-NL-ES, the present study includes a sample of teachers who seek treatment for their work related mental health problems. For the MBI-NL it was shown that in the normative sample, the cut-off scores corresponding with the 95th percentile of the emotional exhaustion scale, the 75th percentile of the depersonalization scale and the 25th percentile of the personal accomplishment scale, are similar to the corresponding mean scores of the subscales in a sample of outpatients that are being treated for burnout (Schaufeli, Bakker, Hoogduin & Schaap, 2001).

■ TABLE 11

NORM TABLE GENDER

SCALE	M	SD	SE	5%	25%	75%	95%	N
EE								
Men	2.08	1.22	.03	.38	1.13	2.88	4.38	1702
Women	1.72	1.09	.03	.25	.88	2.38	3.88	1478
DP_{EXT}								
Men	1.52	.85	.03	.43	.86	2.00	3.00	828
Women	1.0	.68	.02	.14	.43	1.43	2.29	841
rPA								
Men	1.89	.96	.02	.43	1.14	2.57	3.57	1651
Women	1.73	.85	.02	.43	1.14	2.29	3.29	1424
MULTIVARIATE F(3,1567)								
UNIVARIATE F(1,1569)								
EE								
DP								
rPA								
22.08 ***	12.34 ***			62.53 ***			18.36 ***	

*** p ≤ .001; ** p ≤ .01; * p ≤ .05

The following Tables present the normative scores (means and cut-off scores) for the total sample of teachers at work and an additional sample of teachers on sick leave (Table 10), gender (Table 11), age (Table 12), type of school (Table 13), teaching experience (Table 14), and number of hours employed (Table 15). In the norm tables, scores of the extended scale (DP_{EXT}) are presented instead of the scores of the original five-item depersonalization scale.

Interpretation of the burnout dimension, personal accomplishment, has been simplified by subtracting the individual mean score (Mi) from the total mean score (Mt) so that similar to emotional exhaustion and depersonalization, high scores are indicative of a higher level of *reduced* personal accomplishment (rPA). The standard error of estimate (SE) is used to determine the confidence interval of an individual's true score. For instance, the confidence interval for the true score of a mean value of 1.92 on emotional exhaustion (mean value) lies between 1.88 and 1.96.

The results of MANCOVA analysis are shown in Table 10. In this analysis, burnout subscales were dependent variables, sample (1=at work; 2=on sick leave) was the independent variable, and gender, age, type of school, teaching experience, and number of hours employed were included as covariates. As can be seen from Table 10, a significant multivariate effect of

■ TABLE 12

NORM TABLE AGE

SCALE	M	SD	SE	5%	25%	75%	95%	N
EE								
≤ 39	1.71	1.02	.03	.25	1.00	2.31	3.64	977
40-44	1.87	1.12	.04	.38	1.00	2.50	4.00	690
45-49	2.02	1.23	.05	.38	1.00	2.88	4.25	740
≥ 50	2.12	1.30	.05	.38	1.13	2.88	4.63	782
DP_{EXT}								
≤ 39	1.08	.70	.03	.16	.57	1.46	2.43	462
40-44	1.20	.74	.04	.14	.71	1.57	2.57	376
45-49	1.33	.87	.04	.14	.71	1.71	3.00	383
≥ 50	1.45	.87	.04	.29	.86	2.00	3.08	448
rPA								
≤ 39	1.66	.84	.03	.43	1.14	2.14	3.14	932
40-44	1.78	.85	.03	.43	1.14	2.29	3.29	662
45-49	1.83	.95	.04	.43	1.14	2.43	3.57	726
≥ 50	2.04	.98	.04	.57	1.29	2.71	3.71	761
MULTIVARIATE F (9,4701)		UNIVARIATE F (3,1567)						
		EE	DP		rPA			
2.32 *		.36	2.19		5.80 ***			

*** p ≤ .001; ** p ≤ .01; * p ≤ .05

‘sample’ (i.e., health status) was reached. Univariate results indicate that teachers on sick leave score significantly higher on emotional exhaustion and depersonalization than teachers who are at work. Obviously, teachers on sick leave suffer more from feelings of exhaustion and detachment. Note that, although not significant, mean scores on reduced personal accomplishment are also lower for teachers on sick leave.

Table 11 presents the results of a MANCOVA analysis in which the burnout subscales were dependent variables. Gender was the independent variable and age, type of school, teaching experience, and number of hours employed were included as covariates. As can be seen in Table 11, a significant multivariate effect of ‘gender’ was reached. Univariate results indicate that scores on emotional exhaustion, depersonalization, and reduced personal accomplishment between men and women differ significantly. On average, men obtained higher scores than women on all three burnout dimensions.

■ TABLE 13

NORM TABLE AGE

SCALE	M	SD	SE	5%	25%	75%	95%	N
secondary								
vocational	2.03	1.15	.04	.38	1.13	2.75	4.13	935
primary	1.70	1.13	.04	.25	.88	2.25	3.88	856
special education	1.73	1.08	.07	.25	.91	2.38	4.04	272
DP_{EXT}								
secondary	1.48	.84	.04	.29	.86	2.00	3.00	590
vocational	1.40	.80	.05	.29	.86	1.86	2.86	321
primary	.99	.68	.03	.14	.43	1.29	2.43	610
special education	1.13	.80	.08	.14	.43	1.58	2.86	109
rPA								
secondary	1.99	.94	.03	.57	1.29	2.57	3.57	1030
vocational	1.93	.93	.03	.57	1.29	2.57	3.57	911
primary	1.57	.81	.03	.29	1.00	2.00	3.05	832
special education	1.43	.75	.05	.29	.86	2.00	2.73	257
MULTIVARIATE F (9,4596)		UNIVARIATE F (3,1532)						
		EE	DP		rPA			
12.91 ***		4.22 **	17.26 ***		33.60 ***			

*** p ≤ .001; ** p ≤ .01; * p ≤ .05

Results of the MANCOVA analysis are shown in Table 12, with burnout dimensions as dependent variables, age as independent variable, and gender, type of school, teaching experience, and number of hours employed as covariates. Although mean scores on all three burnout dimensions increase with age, results at univariate level only show a significant effect of reduced personal accomplishment ($p < .05$). Teachers of 50 years and over have significantly higher scores on reduced personal accomplishment than teachers in younger age groups. Thus, strictly speaking, for the purpose of interpretation, only the scores on reduced Personal Accomplishment can be used for diagnostic purposes. However, scores on emotional exhaustion and depersonalization are higher in the older age groups and could be used as an indication of higher emotional exhaustion and depersonalization complaints. Results from Scheffé analysis show that teachers in the age groups ‘45-49’ and ‘50 and over’ show significantly higher scores on EE, $F(3,3188) = 20.54$; $p = .001$, DP, $F(3,1668) = 18.06$; $p = .001$, and rPA, $F(3,3080) = 24.76$; $p = .001$ than other age groups.

■ TABLE 14

NORM TABLE TEACHING EXPERIENCE

SCALE	M	SD	SE	5%	25%	75%	95%	N
EE								
≤ 9	1.62	1.02	.04	.25	.87	2.25	3.63	668
10-19	1.93	1.16	.03	.38	1.00	2.63	4.25	1147
≥ 20	2.07	1.24	.04	.38	1.13	2.88	4.38	1261
DP _{EXT}								
≤ 9	1.11	.72	.04	.14	.57	1.57	2.61	294
10-19	1.22	.78	.03	.14	.57	1.71	2.71	631
≥ 20	1.36	.86	.03	.18	.71	1.86	2.86	744
rPA								
≤ 9	1.74	.85	.03	.43	1.14	2.29	3.29	638
10-19	1.78	.88	.03	.43	1.14	2.29	3.43	1101
≥ 20	1.93	.96	.03	.43	1.14	2.57	3.57	1238
MULTIVARIATE \underline{F} (6,3132)				UNIVARIATE \underline{F} (2,1567)				
				EE	DP	rPA		
2.35 *				1.89	.58	2.32		

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

In Table 13 results of MANCOVA analysis are shown in which burnout subscales were the dependent variables. Type of school was the independent variable, and gender, age, teaching experience, and number of hours employed were included as covariates. A significant multivariate effect can be observed from Table 13. Univariate results indicate significant differences in scores on emotional exhaustion, depersonalization, and reduced personal accomplishment. Secondary and vocational school teachers in particular have higher scores on emotional exhaustion, depersonalization, and reduced personal accomplishment. Thus, to diagnose burnout, differences in type of school have an important bearing on all three burnout dimensions. Results from Scheffé analysis show that teachers from secondary and vocational schools show significantly higher scores on EE, $\underline{F}(3,3136) = 18.10$; $p = .001$, DP, $\underline{F}(3,1629) = 44.91$; $p = .001$, and rPA, $\underline{F}(3,3029) = 55.98$; $p = .001$ than teachers from primary schools and special education.

The normative scores for burnout scales as a function of teachers' experience are shown in Table 14. In the MANCOVA analysis burnout scales were the dependent variables, teaching experience was the independent variable, and gender, age, type of school, and number of hours employed were included as covariates. A multivariate effect is shown. However, at univariate level no

■ TABLE 15

NORM TABLE EMPLOYMENT

SCALE	M	SD	SE	5%	25%	75%	95%	N
EE								
part-time	1.80	1.13	.03	.25	1.00	2.50	4.00	1355
full-time	1.98	1.22	.03	.38	1.00	2.75	4.38	1547
DP _{EXT}								
part-time	1.21	.80	.03	.14	.57	1.71	2.71	820
full-time	1.32	.81	.03	.29	.71	1.71	2.86	814
rPA								
part-time	1.91	.91	.03	.57	1.29	2.43	3.57	1318
full-time	1.74	.91	.02	.43	1.14	2.29	3.43	1490
MULTIVARIATE \underline{F} (3,1566)				UNIVARIATE \underline{F} (1,1568)				
				EE	DP	rPA		
4.19 **				1.42	.04	7.74 **		

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

significant results were found. Thus, strictly speaking, differences in scores on separate burnout dimensions are too unreliable for diagnostic purposes where teaching experience is concerned. Results from Scheffé analysis show that teachers with experience of '20 years or more' show significantly higher scores on EE, $\underline{F}(2,3075) = 32.86$; $p = .001$, DP, $\underline{F}(2,1668) = 12.17$; $p = .001$, and rPA, $\underline{F}(2,2976) = 11.50$; $p = .001$ than teachers with less experience.

Results of MANCOVA analysis show a significant effect (Table 15). Results of univariate analysis indicate a significant difference between part time and full time teachers on reduced personal accomplishment. Part time teachers have higher scores than full time teachers on reduced personal accomplishment. Thus, strictly speaking, for the purpose of interpretation, only scores on reduced Personal Accomplishment can be used for diagnostic purposes.

Interaction effects

To examine the interaction effect of type of school on burnout, separate MANCOVA analyses were conducted for gender, age, teaching experience and number of hours employed. Results show no significant interaction effects for any of the investigated factors.

DISCUSSION

Our main objective in the present study was to examine the psychometric quality of the MBI-NL-ES. More specifically, results were presented on the factorial validity, internal consistency and test-retest reliability, intercorrelations between subscales, discriminant, construct, and predictive validity, and normative burnout scores for gender, age, type of school, number of hours employed, and teaching experience were assessed. Overall, it can be concluded that the MBI-NL-ES is a valid and reliable instrument for the study of burnout among Dutch teachers.

Factorial validity. Results of confirmatory factor-analyses in which the factor structure of the MBI-NL-ES was tested, show that the best relative fit of the four models is found for the 3-factor oblique model (M₄). This confirms prior results on the factorial validity of the MBI-NL-ES (Schaufeli et al., 1994). The values of the fit indices of the M₄-model were also quite satisfactory for the subsamples gender, age, type of school, teaching experience and number of hours of employment. Based on these results the factorial validity of burnout can be considered adequate.

Internal consistency and test-retest reliability. Of the three burnout subscales, depersonalization shows the least internal consistence and its reliability differs in the sub samples of secondary, vocational, primary, and special education teachers. The additional two DP-items improved the internal consistencies for both the total sample and the sub samples of teachers on sick leave, primary, secondary, vocational, and special education teachers. In addition, test-retest reliabilities over a 12 months period can be considered good. In sum, the MBI-NL-ES is a questionnaire with internally consistent subscales that is applicable in different types of school and is also found stable across time.

Intercorrelations between burnout subscales. In general, intercorrelations between subscales of the MBI-NL-ES correspond to the correlation coefficients mentioned in the American MBI manual. From these results it can be concluded that the burnout dimensions of MBI-NL-ES are separate, but related, aspects of burnout. Among secondary school teachers, interrelations (most notably between EE and DP/DP_{ext}) are stronger compared to other subsamples. This indicates that secondary school teachers who feel emotionally exhausted feel more detached from others than do teachers from other schools. Among teachers who are currently on sick leave, interrelations between EE and DP/DP_{ext} were less strong, suggesting that in this group the structure of the syndrome might be slightly different. It is possible that teachers on sick leave who are no longer

confronted with the factors that resulted in burnout, experience decreasing feelings of depersonalization.

Discriminant and construct validity. From the intercorrelations between burnout subscales and various health indicators, it can be concluded that burnout discriminates in particular where feelings of DP and PA are concerned. EE seems to have some overlap with various other health indicators such as mental health complaints. As far as construct validity is concerned, results in our study showed that burnout complaints are strongly related to the core aspects of the teaching profession. That is, interactions with students and teaching in general are highly correlated with feelings of emotional exhaustion, depersonalization and a reduced personal accomplishment.

Predictive validity. Results on the predictive validity of burnout show that teachers with average and high scores on emotional exhaustion are more prone to require taking sick leave in the long run. However, future research is needed regarding the predictive validity, since the included sample of teachers was very small.

Normative burnout scores. As mentioned in the introduction, studies have indicated that burnout is significantly related to gender, age, teaching experience, type of school, and the number of hours employed (e.g., Russell et al., 1987; Greenglass et al., 1990). From our results it can be concluded that, in general, male teachers, older teachers, in particular those aged 45 and over, and teachers from secondary and vocational schools are most prone to burnout. In more detail, results show that male teachers have higher scores than female teachers on emotional exhaustion, depersonalization, and reduced personal accomplishment (Van Horn, Schaufeli, Greenglass, Burke, 1997). Several explanations for these findings have been proposed. For instance, Greenglass et al. (1990) argued that women are better able to reduce burnout than men because of their "...greater investments in, and valuation of, friendship..." and because they are more able to "... turn to and enjoy activities other than work, i.e., socializing, the arts, etc." (p23). Anderson and Iwanicki (1984) suggested that female teachers have less feelings of depersonalization than male teachers because they are more caring and show stronger involvement with others and thus do not distance themselves from others easily. The finding that male teachers have higher Emotional Exhaustion scores is replicated by several Dutch studies (e.g., Van Ginkel, 1987). As for age, significant differences have been found for reduced personal accomplishment. That is, teachers of 50 years and over feel less competent than their younger colleagues. Although there was only a significant age effect for feelings of incompetence, levels of emotional exhaustion and depersonalization tend to rise monotonously with age. Results show that teaching experience has no

significant effect on burnout. A more substantial effect regarding differences in burnout scores has been found for type of school, indicating that teachers from secondary and vocational schools have higher scores on emotional exhaustion, depersonalization, and reduced personal accomplishment. These results correspond with previous findings in which secondary school teachers were found to suffer more from burnout than elementary school teachers (Anderson & Iwanicki, 1984; Gold & Grant, 1993). It has been argued by the last mentioned authors that secondary school teachers are more prone to burn out because, compared with students from elementary schools, secondary school students tend to be less interested and more difficult to motivate. Obviously, working in secondary and vocational schools requires more of a teacher's energy and effort.

In sum, the MBI-NL-ES can be considered a valid and reliable burnout-instrument. Moreover, the reliability of the depersonalization scale has been improved. With the present study, reference data are available for both individual as well as group diagnostic purposes. That is, levels of individual and group scores can be compared to normative scores from teachers on sick leave and teachers who are working. Furthermore, comparison is also possible with other normative data including gender, age, type of school, teaching experience, and the number of hours employed. It should be mentioned that future validation of the MBI-NL-ES is needed, especially where the predictive validation is concerned.

APPENDIX

MBI-NL-ES

	0	1	2	3	4	5	6
	NEVER never	SELDOM few times a year or less	NOW AND THEN few times a month or less	REGULAR few times a month	OFTEN once a week	VERY OFTEN few times a week	ALWAYS every day
1	I feel emotionally drained by my work						
2	I feel used up at the end of the day						
3	I feel fatigued when I have to get up in the morning to face another day on the job						
4	I can easily understand how my students feel about things						
5	I feel I treat some students as impersonal 'objects'						
6	Working with people all day is really a strain for me						
7	I deal very effectively with the problems of my students						
8	I feel 'burned out' from my work						
9	I feel I'm a positive influence on other people's lives through my work						
10	I have become more callous toward people since I took this job						
11	I worry that this job is hardening me emotionally						
12	I feel frustrated by my job						
13	I feel I'm working too hard in my job						
14	I don't really care what happens to some students						
15	I can easily create a relaxed atmosphere with my students						
16	I feel exhilarated after working with my students						
17	I have accomplished many worthwhile things in this job						
18	I feel like I'm at the end of my rope						
19	In my work I deal with emotional problems calmly						
20	I feel some students blame me for some of their problems						
21*	In my work, people bother me with personal problems that I don't want to be bothered with						
22*	I try to keep away from the personal problems of my students						

* Depersonalization items added to the depersonalization sub scale

REFERENCES

- Anderson, M.G. & Iwanicki, E.F. (1984).
Teacher motivation and its relationship to burnout.
Educational Administration Quarterly, 20, 109-132.
- Boyle, G. J., Borg, M. G., Falzon, J. M., & Baglioni, A. J. (1995).
A structural model of the dimensions of teacher stress.
British Journal of Educational Psychology, 65, 49-67.
- Brown, M., & Ralph, S. (1992).
Towards the identification of stress in teachers.
Research in Education, 48, 103-110.
- Byrne, B.M. (1993).
*The Maslach Burnout Inventory:
Testing for factorial validity and invariance across elementary,
intermediate and secondary teachers.*
Journal of Occupational and Organizational Psychology, 66, 197-212.
- Byrne, B.M. (1994).
Burnout: Testing for validity, replication and invariance
of causal structure across elementary, intermediate, and
secondary school teachers.
American Educational Research Journal, 31, 645-673.
- Bentler, P.M. & Bonett, D.G. (1980).
Significance tests and goodness of fit in the analysis of
covariance structures.
Psychological Bulletin, 88, 588-606.
- Bentler, P.M., & Weeks, D.G. (1980).
Linear structural equations with latent variables.
Psychometrika, 45, 289-307.
- Bergers, G.P.A., Marcelissen, F.H.G., & De Wolf, Ch.J. (1986).
Handleiding Vragenlijst Organisatiestress – Doetinchem
[Manual Organizational Stress Questionnaire].
University of Nijmegen: Department of Psychology.
- Dirken, J.M. (1969).
Arbeid en stress: Het vaststellen van aanpassingsproblemen in werksituaties
[Work and stress: Determining problems in adapting to work settings].
Groningen: Wolters-Noordhoff.
- Caplan, R.D., Cobb, S., French, J.R.P., Van Harrison, R., & Pinneau, S.R. (1975).
Job demands and worker health.
Ann Arbor (Michigan): Institute of Social Research.
- Centraal Orgaan Bedrijfsgezondheidszorg (CO BGZ).
Vragenlijst Gezondheid, Werk en Werkomstandigheden van Onderwijzend
personeel. [School Health Survey, Work and Work environment Teachers].
Heerlen: CO BGZ.

- Enzmann, D., Schaufeli, W.B., & Girault, N. (1995).
The validity of the Maslach Burnout Inventory in three national samples.
In L.Bennett, D. Miller, & M. Ross (Eds.).
Health workers and AIDS: Research, interventions and current issues (pp. 131-150).
Chur: Harwood.
- Friedman, I.A. (1991).
High- and low-burnout Schools:
School culture aspects of teacher burnout.
Journal of Educational Research, 84, 325-333.
- Ginkel, A.J.H., van (1987).
Demotivatie bij leraren: een onderzoek naar burnout- en
demotivatieverijnselen bij leraren in het voortgezet onderwijs
[Demotivation among teachers: a study into burnout and demotivation
among secondary school teachers].
Lisse: Swets en Zeitlinger B.V.
- Greenglass, E.R., Burke, R.J., & Ondrack, M. (1990).
A gender-role perspective of coping and burnout.
Applied Psychology, 39, 5-27.
- Gold, Y. & Grant, R.A. (1993).
Teachers managing stress and preventing burnout:
The professional health solution.
London: Falmer.
- Green, D.E., Walkey, H.F., & Taylor, A.J.W. (1991).
The three-factor structure of the Maslach Burnout Inventory.
Journal of Social Behavior & Personality, 6, 453-472.
- Hart, N. I. (1987).
Student teachers' anxieties: four measured factors and their
relationships to pupil disruption in class.
Educational Research, 29, 12-18.
- Hodge, G. M., Jupp, J. J., & Taylor, A. J. (1994).
Workstress, distress and burnout in music and mathematics teachers.
British Journal of Educational Psychology, 64, 65-76.
- Horn, J.E. van, Schaufeli, W.B., Greenglass, E.R., & Burke, R.J. (1997).
A Canadian-Dutch comparison of teachers' burnout.
Psychological Reports, 81, 371-382.
- Jackson, S.E., Schwab, R.L., & Schuler, R.S. (1986).
Toward an understanding of the burnout phenomenon.
Journal of Applied Psychology, 71, 630-640.
- Kers, W.C. & Zouwe, N., van der (1994).
Psychische ziekten: Volledig en blijvend arbeidsongeschikt
[Mental disorders: Entirely and permanently work incapacitated].
Tijdschrift voor Sociale Geneeskunde, 71, 293-300.

- Koeske, G.F. & Koeske, R.D. (1989). Construct validity of the Maslach Burnout Inventory: A critical review and reconceptualization. *Journal of Applied Behavioral Science*, 25, 131-144.
- Kompier, M.A.J. & Marcelissen, F.H.G. (1990). *Handboek werkstress [Handbook on Workstress]*. Amsterdam: NIA.
- Maslach, C. (1982). *Burnout, the cost of caring*. New Jersey: Englewood Cliffs.
- Maslach, C. & Jackson, S.E. (1986). *Maslach Burnout Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C. & Jackson, S.E. (1996). *Maslach Burnout Inventory – Human Services Survey (MBI-HSS)*. In C. Maslach, S.E. Jackson, & M.P. Leiter, *MBI Study* (3d ed). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Jackson, S.E., & Schwab, R.L. (1996). *Maslach Burnout Inventory – Educators Survey (MBI-ES)*. In C. Maslach, S.E. Jackson, & M.P. Leiter, *MBI Study* (3d ed). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C. & Schaufeli, W.B. (1993). Historical and conceptual development of burnout. In: W.B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research*. Washington, DC: Taylor & Francis. Pp 1-16.
- Mowday, R.T. Steers, R.M., & Porter, L.W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, 14, 224-247.
- Nunally, N.C. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Poppel, J. van & Kamphuis, P. (1992). *Gezondheid, werk en werkomstandigheden van het onderwijzend personeel in het schooljaar 1990-1991* [Health, work and working conditions in schools: 1990-1991]. Tilburg: IVA.
- Russel, D.W., Altmaier, E., & Velzen, D. van (1987). Job-related stress, social support, and burnout among classroom teachers. *Journal of Applied Psychology*, 72, 269-274.
- Schaufeli, W.B., Daamen, J.R.H., & Mierlo, J.A.J. van (1994). Burnout among Dutch teachers: An MBI validity study. *Educational & Psychological Measurement*, 54, 803-812.
- Schaufeli, W.B. & Dierendonck, D. van (1993). The construct validity of two burnout measures. *Journal of Organizational Behavior*, 14, 631-647.

- Schaufeli, W.B. & Dierendonck, D. van (1994). *Burnout, een concept gemeten: De Nederlandse versie van de Maslach Burnout Inventory (MBI-NL)*. [Burnout, the measurement of a construct: The Dutch version of the Maslach Burnout Inventory]. *Gedrag & Gezondheid*, 22, 153-172.
- Schaufeli, W.B. & VanDierendonck, D. (1995). A cautionary note about the cross-national and clinical validity of cut-off points for the Maslach Burnout Inventory. *Psychological Reports*, 76, 1083-1090.
- Schaufeli, W.B. & VanDierendonck, D. (2000). *UBOS: Handleiding Utrechtse Burnout Schaal*. [UBOS: Manual Utrecht Burnout Scale]. Lisse: Swets Test Publishers.
- Schaufeli, W.B., Bakker, A.B., Hoogduin, C.A.L., & Schaap, C. (2001). On the clinical validity of the Maslach Burnout Inventory and the Burnout Measure. *Psychology & Health*, 16, 565-582.
- Schaufeli, W.B., Hoonakker, P., Van Horn, J.E. (1996). *Vragenlijst 'Stress op School' (SOS) [Questionnaire 'Stress at School']*. Utrecht: Utrecht University, department of Social and Organizational psychology.
- Schaufeli, W.B., Leiter, M.P., Maslach, C., & Jackson, S.E. (1996). *Maslach Burnout Inventory – General Survey*. In C. Maslach, S.E. Jackson, & M.P. Leiter (Eds.). *The Maslach Burnout Inventory* (3rd ed) – Test manual. Palo Alto: Consulting Psychologists Press.
- Smith, M., & Bourke, S. (1992). Teacher stress: examining a model based on context, workload, and satisfaction. *Teaching & Teacher Education*, 8, 31-46.
- Taris, T., Schaufeli, W.B., Schreurs, P., & Calje, D. (2000). *Opgebrand in het onderwijs: stress, psychische vermoeidheid en ziekteverzuim onder leraren*. [Burnout among teachers: stress, mental fatigue en sick leave] In Houtman, I.L.D., Schaufeli, W.B., & Taris, T. *Psychische vermoeidheid en werk*. [Mental fatigue and work] Alphen a/d Rijn: Samsom.
- Travers, C. J., & Cooper, C. L. (1993). Mental health, job satisfaction and occupational stress among UK teachers. *Work & Stress*, 7, 203-219.
- Warr, P.B. (1990a). Decision latitude, job demands, and employee well-being. *Work & Stress*, 4, 285-294.
- Warr, P.B. (1990b). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology*, 63, 193-210.

- Horn, J.E. van, Schaufeli, W.B., Greenglass, E.R., & Burke, J. (1997). A Canadian-Dutch comparison of teachers' burnout. *Psychological Reports*, 81, 371 - 382

1 2 3 4 5 6

A CANADIAN-DUTCH COMPARISON OF TEACHERS' BURNOUT

SUMMARY

Scores on burnout among 631 Canadian and 1,180 Dutch teachers were compared with various demographic variables (sex and age) and factors related to work (experience in teaching, type of school and number of hours employed). Burnout was assessed with the Maslach Burnout Inventory (MBI) that comprises three dimensions: emotional exhaustion, depersonalization and personal accomplishment. Analysis indicated that, overall, Canadian teachers reported higher scores on emotional exhaustion and depersonalization than their Dutch peers. Differences in the number of hours employed were also significant: full-time Canadian teachers scored higher on depersonalization than their Dutch colleagues. Across countries, sex and type of school appeared to be significantly related to burnout. Male teachers rated higher on emotional exhaustion and depersonalization than female teachers. Especially with regard to the attitudinal components of burnout, that is depersonalization and personal accomplishment, secondary school teachers reported higher scores than elementary school teachers. Age was not significantly related to burnout.

INTRODUCTION

Research on stress and burnout among teachers has received considerable attention in countries as diverse as Great Britain (*e.g.*, Brown & Ralph, 1992; Cooper, 1995), the United States (*e.g.*, Belcastro, Gold, & Grant, 1982; Byrne, 1991), Jordania (*e.g.*, Friedman, 1991), South Africa (*e.g.*, Pretorius, 1994), Canada (*e.g.*, Wolpin, Burke, & Greenglass, 1991), Malta (*e.g.*, Borg & Falzon, 1989), Australia

(*e.g.*, Punch & Tuettemann, 1991; Smith & Bourke, 1992), and The Netherlands (*e.g.*, Van Ginkel, 1987). From the results of these studies teaching has been characterized as a particularly stressful occupation. Teachers experience stress from a variety of sources, such as problems in interactions with students (*e.g.*, disciplinary problems, students' misbehavior and lack of motivation) (Borg & Falzon, 1989; Smith & Bourke, 1992; Hodge, Jupp, & Taylor, 1994; Boyle, Borg, Falzon, & Baglioni, 1995) and problems in relation to their school (*e.g.*, poor organization of schools, and lack of technical and administrative support) (Brown & Ralph, 1992; Smith & Bourke, 1992; Travers & Cooper, 1993). As a result, teachers might develop physical symptoms, *e.g.*, headaches, peptic ulcers (Belcastro *et al.*, 1982), psychological symptoms, *e.g.*, depression and anger (Greenglass, Burke, & Ondrack, 1990; Punch & Tuettemann, 1991) and behavioral symptoms, *e.g.*, lowered commitment to teaching and absenteeism (Cherniss, 1980; Blase, 1986). It is assumed that the burnout syndrome plays a role in the occurrence of these symptoms. Although little is known about the exact prevalence of burnout among teachers, burnout is regarded as a serious problem and is seen as a major contributor to absenteeism, turnover, and disability (Belcastro *et al.*, 1982; Travers & Cooper, 1993).

Burnout is a concept used to characterize a reaction to long term stress, which is specifically linked to the emotional strain of working frequently and intensively with other people. Particularly, professionals working in human services (*e.g.*, nurses, physicians, social workers, and teachers) are vulnerable to burnout (Maslach, 1982). A striking example of burnout is given by a teacher describing her colleague who is disillusioned with her work: "Last year you could light up a house with her energy. Now a firefly would even brighten her flame....." (O'Connell Rust, 1994; p. 211).

The most widely accepted conceptualization of burnout is found in the work of Maslach and Jackson (1986). They consider burnout as a symptom of emotional exhaustion, depersonalization and reduced personal accomplishment. Of these three dimensions, *emotional exhaustion* comes closest to an orthodox reaction to stress (Maslach & Schaufeli, 1993). Emotional exhaustion refers to a depletion of one's emotional resources and the feeling that one has nothing left to give to others psychologically. Such feelings are likely to occur when teachers show strong involvement with the personal and social needs of students. *Depersonalization* is described in terms of the development of indifferent and negative attitudes towards students in particular. It is assumed that teachers distance themselves from their students in order to cope with their feelings of emotional exhaustion. The third dimension of burnout involves a negative evaluation of one's *personal accomplishments* in working with other people. Teachers perceive themselves as less effective in their work, particularly with regard to teaching students.

In studies of burnout from North-America and The Netherlands, rates of burnout are found to be related to demographic variables, such as sex and age, (Anderson & Iwanicki, 1984; Van Ginkel, 1987; Greenglass, et al., 1990; Van Poppel & Kamphuis, 1992) as well as to factors related to work, such as experience in teaching, and type of school (Anderson & Iwanicki, 1984; Russell, Altmaier, & Velzen, 1987; Van Ginkel, 1987). However, across countries different results are obtained. North-American data indicate that male teachers report higher scores on depersonalization, whereas female teachers report higher scores on emotional exhaustion and lower scores on personal accomplishment (Anderson & Iwanicki, 1984, Russel, et al., 1987; Greenglass, et al., 1990). Slightly different results are found among Dutch teachers; where feelings of emotional exhaustion are significantly higher in men (Van Ginkel, 1987). No significant differences are found in personal accomplishment, whereas, similar to North-America, males display higher scores on depersonalization than females. Higher scores on depersonalization among men are usually explained by the prescriptions of the masculine sex role. It is argued that men are taught that masculinity is equated with less display of emotion (Van Ginkel, 1987; Greenglass, et al., 1990). Accordingly, men are more likely to distance themselves from the people whom they work with, particularly when under stress (Ogus, Greenglass, & Burke, 1990). Obviously, these sex-role prescriptions are not limited to a single culture so that men in both North-America and The Netherlands would score significantly higher on depersonalization than women.

Several studies report on the relevance of age in the study of burnout among teachers. However, in both Dutch and North-American studies it is suggested that experience in teaching, rather than age, is more strongly related to burnout. In North-America, researchers generally conclude that younger teachers are more vulnerable to burnout than older teachers (Anderson & Iwanicki, 1984; Friedman, 1991). For instance, Anderson and Iwanicki (1984) found that teachers with less than twelve years of experience showed higher scores on emotional exhaustion and lower scores on personal accomplishment compared to teachers with more experience. Cherniss (1980) used the term 'early career burnout' to indicate that less experienced teachers are more prone to burn out due to a discrepancy between their initial expectations and reality. Accordingly, feelings of incompetence among younger teachers can be indicative of a lack of experience in controlling classes, discipline, and how to motivate pupils and maintain their interest (Hart, 1987). In contrast, findings from the Netherlands suggest that more experienced rather than less experienced teachers are at larger risk of burning out (Van Ginkel, 1987). The longer they work as a teacher, the more they become emotionally exhausted. This suggests a process of gradually wearing out. To date, no explanation has been offered for these

cross-national differences in patterns of teacher burnout related to experience.

Some studies show a significant relation between burnout and type of school; burnout seems to be more prevalent among secondary than among elementary school teachers (Anderson & Iwanicki, 1984; Russell, et al., 1987). The former authors reported higher scores on depersonalization and lower scores on personal accomplishment. Gold and Grant (1993) argued that secondary school teachers are more burned out because, compared with students from elementary schools, secondary school students are less interested and more difficult to motivate. Another confounding factor in higher rates of burnout among secondary school teachers is the number of male teachers in secondary schools. Overall, men are more often employed in secondary schools than women. As noted previously, male teachers report higher scores on depersonalization than female teachers. Anderson and Iwanicki (1984) suggested that female teachers do not distance themselves from others easily, because they are more caring and show stronger involvement with others than men. This leads us to expect that, after controlling for sex, no effects will be found for type of school on burnout.

In several studies (e.g., Anderson & Iwanicki, 1984; Van Ginkel, 1987; Friedman, 1991) it was concluded that the number of hours employed is positively related to burnout. That is, full-time teachers reported higher scores on emotional exhaustion than part-time teachers. Full-time teachers have less time to spend on other activities than work, therefore it is not surprising that they have fewer opportunities to rest and refill their energetic resources.

The present study sets out to compare scores on emotional exhaustion, depersonalization and personal accomplishment among Canadian and Dutch teachers, taking into account sex, experience in teaching, type of school, and number of hours employed as potential confounders. To date, no direct cross-national comparisons have been made with regard to the relationship between teacher' burnout and above mentioned demographic variables and factors related to work. In the current study, four hypotheses were tested:

1. Across samples, men will report higher scores on depersonalization;
2. High scores on measures of burnout will be more prevalent among more experienced Dutch teachers and less experienced Canadian teachers;
3. After controlling for sex, no cross-national differences in burnout will be found for type of school;
4. Across samples, full-time teachers would obtain higher scores on measures of burnout than part-time teachers.

METHOD

Samples

Sample of Canadian teachers

The sample of Canadian teachers consisted of 631 respondents of whom 348 were women and 283 men ($\chi^2 = .59$, ns). The respondents were employed in teaching within a single board of education in a large Canadian city. The average age of respondents was 42.0 yr. ($SD = 7.9$). For men, the average age was 43.0 yr. ($SD = 7.5$) and for women 42.0 yr. ($SD = 8.1$) (for further details, see Burke & Greenglass, 1989).

Sample of Dutch teachers

The sample of Dutch teachers consisted of 1,105 respondents of whom 421 were women and 684 men ($\chi^2 = 45.21$, $p \leq .001$). Although the Dutch sample included subsamples of teachers from six elementary and four secondary schools in different parts of the Netherlands, we expect limited variance in educational policies. Since educational policies in this country are largely centralized. The average age of respondents was 43.0 yr. ($SD = 7.8$). The average age for men was 44.0 yr. ($SD = 7.3$) and for women 42.0 yr. ($SD = 8.2$).

Table 1 shows demographic characteristics of both samples. The Dutch sample includes more male and female teachers than the Canadian sample ($\chi^2 = 47.32$, $p \leq .001$). As for age, in the Dutch sample the number of teachers in all age groups is greater than the number of teachers in the Canadian sample ($\chi^2 = 42.91$, $p \leq .001$). Moreover, differences in years teaching are significant ($\chi^2 = 81.28$, $p \leq .001$). There are significantly more Canadian elementary school teachers, and more Dutch secondary school teachers ($\chi^2 = 603.57$, $p \leq .001$). Moreover, the number of full-time and part-time teachers in the Dutch and Canadian samples differs significantly ($\chi^2 = 59.37$, $p \leq .001$), with full-time outnumbering part-time teachers. Significantly different associations observed between the two samples imply that in comparing rates of burnout among Canadian and Dutch teachers demographic variables, that is, sex, and factors related to work, that is, experience in teaching, type of school, and number of hours employed, should be controlled for.

Measures

Burnout among Canadian teachers was measured with the original inventory (Maslach & Jackson, 1986). The Dutch (NL) version of the Maslach Burnout

■ TABLE 1

DEMOGRAPHIC CHARACTERISTICS OF DUTCH AND CANADIAN SAMPLES OF TEACHERS

	DUTCH TEACHERS		CANADIAN TEACHERS	
	n	%	n	%
SEX				
Male	684	61.9	283	44.8
Female	421	38.1	348	55.2
Total	1105	100.0	631	100.0
AGE GROUP				
20-39	357	32.0	281	45.2
40-44	233	20.9	116	18.7
45-49	279	25.0	87	14.0
50-65	245	22.0	137	22.1
Total	1040	100.0	621	100.0
YEARS OF TEACHING EXPERIENCE				
< 10	316	29.0	89	14.0
10 - 20	458	42.0	369	59.0
> 20	317	29.0	172	27.0
Total	1091	100.0	630	100.0
TYPE OF SCHOOL				
Elementary	131	11.6	431	68.7
Secondary	996	88.4	196	31.3
Total	1127	100.0	627	100.0
NUMBER OF HOURS EMPLOYED				
Full-time teacher	676	75.6	576	91.0
Part-time teacher	218	24.4	57	9.0
Total	894	100.0	633	100.0

Note: due to missing data, the total number of respondents may vary slightly for different demographic variables

Inventory (Maslach & Jackson, 1986) for Educators (MBI-NL-ED) (Schaufeli & Van Horn, 1995; Schaufeli, Daamen & Van Mierlo, 1993) was used to measure burnout among Dutch teachers. Although in the Dutch version two weak items from the subscales emotional exhaustion (item 16: "Working with people puts too much strain on me") and personal accomplishment (item 12: "I feel very energetic") have been eliminated (Schaufeli, et al., 1993), a 22-item version is used in the present study for reasons of compatibility with the original version. The MBI includes three sub scales: emotional exhaustion (9 items, Canadian sample $\alpha = .91$; Dutch sample $\alpha = .88$), depersonalization (5 items, Canadian sample $\alpha = .74$; Dutch sample $\alpha = .67$) and personal accomplishment (8 items, Canadian sample $\alpha = .82$;

Dutch sample $\alpha = .80$). Each MBI statement is rated on a seven-point scale ranging from 0 ('a few times a year') to 6 ('every day'). Items in each subscale are summed to form a total score. High scores on emotional exhaustion and depersonalization, and a low score on personal accomplishment, are indicative of burnout.

With regard to sample, Dutch teachers were rated 0 and Canadian teachers 1. As for sex, Male teachers were rated 0 and female teachers 1. With regard to type of school, elementary school teachers were rated 0 and secondary school teachers 1. As for the number of hours employed, full-time teachers were rated 0 and part-time teachers 1.

RESULTS

Results are presented in three sections. In the first section descriptive statistics of the MBI in both samples are presented. Hypotheses 1 and 2 and Hypotheses 3 and 4 are presented in the second and third section, respectively.

Descriptive statistics

In Table 2, mean scores, and standard deviations are presented for the Dutch and Canadian teachers.

After controlling for demographic variables, that is, sex and age, and factors related to work, that is, experience in teaching, number of hours employed,

TABLE 2
MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS OF SUBSCALE SCORES OF THE MASLACH BURNOUT INVENTORY

	SUB SCALES	M	SD	N
DUTCH TEACHERS	Emotional Exhaustion	18.07	11.11	1084
	Depersonalization	5.84	5.19	1098
	Personal Accomplishment	34.50	8.29	1025
CANADIAN TEACHERS	Emotional Exhaustion	20.43	11.58	613
	Depersonalization	6.36	5.36	601
	Personal Accomplishment	35.29	8.18	594

and type of school, Canadian teachers reported significantly higher scores on emotional exhaustion ($F_{1,1457} = 19.50, p \leq .001$) and depersonalization ($F_{1,1457} = 27.51, p \leq .001$). Differences in scores on personal accomplishment were not significant ($F_{1,1457} = 1.22$ ns). Intercorrelations between scores on emotional exhaustion, depersonalization and personal accomplishment differ slightly in the two samples. For Canadian teachers, scores on depersonalization are more strongly related to those on personal accomplishment than for the Dutch teachers ($r = -.39$ and $r = -.17$, respectively). The intercorrelations of scores on emotional exhaustion and depersonalization in both the Canadian and Dutch sample are more or less similar ($r = .59$ and $.58$, respectively). Slightly different intercorrelations are found for scores on emotional exhaustion and personal accomplishment in the Canadian ($r = -.33$) and Dutch ($r = -.23$) samples.

Despite the fact that, because of the large sample size, all correlations between MBI-subscales are statistically significant ($p < .001$), it should be noted that only emotional exhaustion and depersonalization share a considerable amount of variance, about 33%. Personal accomplishment only slightly overlaps with emotional exhaustion (between 3% and 15% shared variance) and depersonalization (between 5% and 11% shared variance).

Relations of burnout and demographic variables for Canadian and Dutch teachers

To examine the relationship between sex and scores on Burnout in both samples, a multivariate analysis of covariance was executed with sample and sex as independent variables and the scores on the three subscales of the Maslach Burnout Inventory as dependent variables. To control for the effects of experience in teaching, type of school and number of hours employed, these three variables were included as covariates.

Table 3 shows a multivariate main effect for sample and sex. Univariate analyses show significant differences between samples in scores on emotional exhaustion and depersonalization. Canadian teachers reported significantly higher scores on emotional exhaustion ($M = 19.0$) and depersonalization ($M = 6.4$) than their Dutch colleagues ($M = 16.5$; $M = 5.8$, respectively). Differences in scores on emotional exhaustion and depersonalization were also significant with regard to sex. Across samples, men obtained higher scores on both emotional exhaustion ($M = 18.1$) and depersonalization ($M = 6.9$) than the women ($M = 16.5$; $M = 4.9$, respectively). With this result our first hypothesis concerning sex differences is supported. Table 3 also shows a multivariate two-way interaction of sample by sex. Univariate analyses indicate that scores on

■ TABLE 3

SCORES ON THE MASLACH BURNOUT INVENTORY AND SEX AMONG DUTCH AND CANADIAN TEACHERS

		UNIVARIATE		MULTIVARIATE
		F(3,1445)		F(9,4335)
	Emotional Exhaustion	Depersonalization	Personal Accomplishment	
MAIN EFFECTS:				
Sample	20.08 ***	27.63 ***	2.45	10.62 ***
Sex	5.95 *	45.22 ***	.00	17.06 ***
2-WAY INTERACTION EFFECT:				
Sample x Sex	.12	.10	8.74 **	3.10 *

* $p < .05$; ** $p < .01$; *** $p < .001$

personal accomplishment are significant. That is, female Canadian teachers reported significantly higher scores on personal accomplishment ($M = 31.4$) than their male peers ($M = 30.5$). No significant differences in scores on emotional exhaustion and depersonalization were found and the significant difference is less than 2 raw score points.

Burnout and work related factors among Canadian and Dutch teachers

To examine the relation of scores on burnout to experience in teaching, type of school, and number of hours employed in both samples, a multivariate analysis of covariance was executed with sample, experience in teaching, type of school (elementary vs. secondary) and number of hours employed as independent variables and the scores on the three sub scales of the Maslach Burnout Inventory as dependent variables. To control for effects of sex and age, these variables were included as covariates.

The second hypothesis predicted that less experienced Canadian teachers and more experienced Dutch teachers would report higher scores on burnout. Accordingly, we expected an interaction of experience in teaching by sample. However, no such interaction effect was found; see Table 4.

Hypothesis 3 concerning type of school and scores on burnout is also not supported. We expected that there would be no effect of type of school on burnout scores after controlling for sex; however, secondary school teachers

■ TABLE 4

RELATION BETWEEN BURNOUT, EXPERIENCE IN TEACHING, TYPE OF SCHOOL, AND NUMBER OF HOURS EMPLOYED AMONG DUTCH AND CANADIAN TEACHERS

	UNIVARIATE			MULTIVARIATE
		F _{2,1438}		F _{6,2874}
	Emotional Exhaustion	Depersonal- ization	Personal Accomplishment	
MAIN EFFECTS:				
Experience in teaching	2.54	1.33	2.43	1.33
Type of school	3.52 *	6.75 **	17.84 ***	6.50 ***
Hours employed	.47	1.52	.09	.70
Sample	7.11 **	7.04 **	3.39 *	3.29 *
2-WAY INTERACTION EFFECTS:				
• Type of school x Experience in teaching	1.77	.26	.54	.76
• Hours employed x Experience in teaching	1.89	.49	1.12	.87
• Hours employed x Type of school	1.68	.32	.79	.66
• Sample x Experience in teaching	.80.	.63	.81	.81
• Sample x Type of school	.89	1.64	.22	1.87
• Sample x Hours employed	1.60	4.99 *	.28	2.28 *

* $p < .05$; ** $p < .01$; *** $p < .001$

obtained higher scores on depersonalization ($M = 6.2$) and lower scores on personal accomplishment ($M = 29.8$) than elementary school teachers ($M = 5.6$; $M = 32.0$, respectively).

Our prediction was that, across samples, full-time teachers would report higher scores on burnout than part-time teachers (Hypothesis 4). This hypothesis was not supported. As can be seen from Table 4, multivariate analysis shows a significant two-way interaction of sample by number of hours employed. Univariate results indicate that differences in scores on depersonalization are significant. Full-time Canadian teachers had significantly higher scores on depersonalization than their part-time colleagues. No significant differences were found in scores on emotional exhaustion and personal accomplishment.

In sum, Canadian teachers reported higher scores on emotional exhaustion and depersonalization than Dutch teachers. Except for personal accomplishment, sex differences in scores for both Canadian and Dutch teachers were significant: male teachers had higher scores on emotional exhaustion and depersonalization than their female colleagues. Experience in teaching was not related to scores on burnout. Except for emotional exhaustion, secondary school teachers had higher scores on burnout than elementary school teachers. The number of hours employed is not related to scores on depersonalization; however, differences across samples occurred among Canadian teachers, full-time employment was related to higher scores on depersonalization.

DISCUSSION

Our first hypothesis concerning sex differences in scores on depersonalization, is supported: male teachers across samples had higher scores on depersonalization than their female colleagues. Comparable results were obtained in studies among employees from other professions (e.g., Maslach & Jackson, 1982). Possibly, sex differences in scores on depersonalization are more related to socialization processes than to a specific profession. Our results also indicate that men had higher scores on emotional exhaustion than women. It is possible that burnout is more prevalent among men because they have less affective coping strategies than women. As concluded by Greenglass, et al. (1990) women are better able to reduce burnout than men because of their "...greater investments in, and valuation of, friendship..." and because they are more able to "... turn to and enjoy activities other than work, i.e., socialising, the arts, etc." (p. 23). Results from other studies are contradictory regarding differences in scores on emotional exhaustion and personal accomplishment. It seems that the only consistent sex difference appears on depersonalization (Maslach & Jackson, 1982; Schwab & Iwanicki, 1982). From our study, results also indicate that in comparison with Dutch teachers and Canadian male teachers, Canadian female teachers had higher scores on personal accomplishment. Greenglass, et al. (1990) argued that social support at work functions as a buffer against burnout in women; however, the extent to which social support is available to women may depend on whether co-workers are predominantly male or female. Research reports that when women are in jobs where women are predominantly found, they feel that their work is more important and experience more satisfaction related to accomplishment relative to women in male-dominated jobs (Greenfield, Greiner, & Wood, 1980). The distribution of male and female teachers in our samples shows that in Canadian schools the percentage of female teachers is greater

than the percentage of Dutch female teachers: 55% and 38%, respectively. Possibly, our finding that Canadian female teachers feel more competent in their work could be related to the fact that they work in a more female dominated environment.

We hypothesized (Hypothesis 2) that high scores on burnout would be more prevalent among more experienced Dutch and less experienced Canadian teachers; however, no significant results were obtained. It is possible that these less experienced Canadian and more experienced Dutch teachers left their profession because of the stress of teaching.

Contrary to our third hypothesis, secondary school teachers in Canada and The Netherlands showed higher scores on burnout than elementary school teachers, after controlling for sex. They had higher scores on depersonalization and lower scores on personal accomplishment. In the introduction, we had argued that the higher proportion of male teachers in secondary schools could account for this finding. After controlling for sex, consistent differences in type of school remain. Equity theory (Adams, 1965) could be relevant in explaining this finding. In this theory, investments and outcomes are regarded as important concepts in social exchange relationships with others. Adams (1965) stresses that people pursue reciprocity in exchange relationship: the ratio of investments to outcomes for the person in question should be in proportion to the investments and outcomes of the (real or hypothetical) other. When investments and outcomes ratios do not match, feelings of inequity are perceived. The relevance of imbalanced exchange relationships in the development of burnout has been recently demonstrated in a study conducted by Schaufeli, Van Dierendonck and Van Gorp (1996). With regard to our own results, it is possible that secondary school teachers report higher scores on burnout because of feelings of inequity.

Our final hypothesis (Hypothesis 4) that, across samples, full-time teachers would report higher scores on burnout than part-time teachers was not supported. However, a significant interaction of sample by number of hours was found for depersonalization: higher scores on depersonalization occur among Canadian teachers in full-time employment. It is possible that in the Netherlands teachers have greater possibilities to work part-time.

Overall, after controlling for some relevant alternative variables, Canadian teachers reported higher scores on burnout than their Dutch colleagues. So far, no valid explanations have been proposed for these differences. It cannot be ruled out that sampling bias and response tendencies have played a role. For instance, both national samples may be unrepresentative as far as sex, occupation, work experience and so forth are concerned.

REFERENCES

- Adams, J. S. (1965).
Inequity in social exchange. In L. Berkowitz (Ed.),
Advances in experimental psychology, 2, 267-299.
- Anderson, M. G., & Iwanicki, E. F. (1984).
Teacher motivation and its relationship to burnout.
Educational Administration Quarterly, 20, 109-132.
- Belcastro, P. A., Gold, R. S., & Grant, J. (1982).
Stress and burnout: physiologic effects on correctional teachers.
Criminal Justice & Behavior, 9, 387-395.
- Blase, J. J. (1986).
A qualitative analysis of sources of teacher stress:
consequences for performance.
American Educational Research Journal, 23, 13-40.
- Borg, M. G., & Falzon, J. M. (1989).
Sources of teacher stress in Maltese primary schools.
Research in Education, 46, 1-15.
- Boyle, G. J., Borg, M. G., Falzon, J. M., & Baglioni, A. J. (1995).
A structural model of the dimensions of teacher stress.
British Journal of Educational Psychology, 65, 49-67.
- Brown, M., & Ralph, S. (1992).
Towards the identification of stress in teachers.
Research in Education, 48, 103-110.
- Burke, R. J., & Greenglass, E. R. (1989).
Psychological burnout among men and women in teaching:
an examination of the Cherniss model.
Human Relations, 42, 261-273.
- Byrne, B. M. (1991).
Burnout: investigating the impact of background variables
for elementary, intermediate, secondary, and university educators.
Teaching & Teacher Education, 7, 197-209.
- Cherniss, C. (1980).
Professional burnout in human service organizations.
New York: Praeger.
- Cooper, C. L. (1995).
Life at the chalkface: identifying and measuring teacher stress.
British Journal of Educational Psychology, 65, 69-71.
- Friedman, I. A. (1991).
High- and low-burnout schools:
school culture aspects of teacher burnout.
Journal of Educational Research, 84, 325-333.

- Ginkel, A. J. H., van (1987).
Demotivatie bij leraren: een onderzoek naar burnout- en
demotivatieveverschijnselen bij leraren in het voortgezet onderwijs
[Demotivation among teachers: a study into burnout
and demotivation among secondary school teachers].
Lisse: Swets en Zeitlinger B.V.
- Gold, Y., & Grant, R. A. (1993).
Teachers managing stress and preventing burnout:
the professional health solution.
London: Falmer.
- Greenfield, S., Greiner, L., & Wood, M. M. (1980).
The "feminine mystique" in male dominated jobs:
comparison of attitudes and background factors of women
in male-dominated versus female-dominated jobs.
Journal of Vocational Behavior, 17, 291-309.
- Greenglass, E. R., Burke, R. J., & Ondrack, M. (1990).
A gender-role perspective of coping and burnout.
Applied Psychology, 39, 5-27.
- Hart, N. I. (1987).
Student teachers' anxieties: four measured factors and
their relationships to pupil disruption in class.
Educational Research, 29, 12-18.
- Hodge, G. M., Jupp, J. J., & Taylor, A. J. (1994).
Workstress, distress and burnout
in music and mathematics teachers.
British Journal of Educational Psychology, 64, 65-76.
- Maslach, C. (1982).
Burnout, the cost of caring.
Englewood Cliffs, NJ: Prentice-Hall
- Maslach, C., & Jackson, S. E. (1986).
Maslach Burnout Inventory.
Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Jackson, S. E. (1982).
The role of sex and family variables in burnout.
Sex Roles, 12, 837-851.
- Maslach, C., & Schaufeli, W. B. (1993).
Historical and conceptual development of burnout.
In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.).
Professional burnout: recent developments in theory and research.
Washington, DC: Taylor & Francis. Pp. 1-16.
- O'Connell Rust, F. (1994).
The first year of teaching: it's not what they expected.
Teaching & Teacher Education, 10, 205-217.

- Ogus, D. E., Greenglass, E. R., & Burke, R. J. (1990).
Gender-role differences, work stress and depersonalization.
Journal of Social Behavior & Personality, 5, 387-398.
- Poppel, J., van & Kamphuis, P. (1992).
Gezondheid, werk en werkomstandigheden van
het onderwijzend personeel in het schooljaar 1990-1991
[Health, work and working conditions in schools: 1990-1991].
Tilburg: IVA.
- Pretorius, T. B. (1994).
Using the Maslach Burnout Inventory to assess
educators' burnout at a university in South Africa.
Psychological Reports, 75, 771-777.
- Punch, K. F., & Tuettemann, E. (1991).
Stressful factors and the likelihood of psychological
distress among classroom teachers.
Educational Research Volume, 33, 65-69.
- Russel, D. W., Altmaier, E., & Velzen, D. van (1987).
Job-related stress, social support, and burnout
among classroom teachers.
Journal of Applied Psychology, 72, 269-274.
- Schaufeli, W. B., Daamen, J. R. H., & Mierlo, J. A. J. van (1993).
Burnout among Dutch teachers: an MBI validity study.
Educational & Psychological Measurement, 54, 803-812.
- Schaufeli, W.B., Van Dierendonck, D., & Van Gorp, K (1996).
Burnout and reciprocity:
towards a dual-level social exchange model.
Work & Stress, 3, 225-237.
- Schaufeli, W. B., & Van Horn, J. E. (1995).
De Maslach Burnout Inventory voor leerkrachten (MBI-NL-ED)
Voorlopige handleiding
[Maslach Burnout Inventory for Dutch teachers].
(Unpublished manuscript). Universiteit Utrecht.
- Smith, M., & Bourke, S. (1992).
Teacher stress: examining a model based on context,
workload, and satisfaction.
Teaching & Teacher Education, 8, 31-46.
- Schwab, R. L., & Iwanicki, E. F. (1982).
Who are burned out teachers?
Educational Research Quarterly, 7, 2.
- Travers, C. J., & Cooper, C. L. (1993).
Mental health, job satisfaction and occupational
stress among UK teachers.
Work & Stress, 7, 203-219.

- Wolpin, J., Burke, R. J., & Greenglass, E.R. (1991).
Is job satisfaction an antecedent or a consequence
of psychological burnout?
Human Relations, 44, 193-209.

- Horn, J.E. van, Taris, T.W., Schaufeli, W.B., & Schreurs, P.J.G. (2002). A multi-dimensional approach to measuring teacher well-being. Submitted for publication.

1 2 3 A MULTI- DIMENSIONAL APPROACH TO MEASURING TEACHER WELL-BEING 6

SUMMARY

The object of this study was to examine the structure of work-related well-being among 1352 teachers. Building on the work of Warr (1987, 1994) and Ryff (1989; Ryff & Singer, 1996, 1998), the present research proposes a multi-dimensional model for the well-being of teachers. This model was tested against the traditional uni-dimensional model. As expected, confirmatory factor analysis revealed that the 5-factor model accounted better for the data than the unidimensional model. Implications are discussed.

INTRODUCTION

A multi-dimensional approach to measuring teacher well-being

Well-being is traditionally construed as a global, uni-dimensional affective state, originating from a positive evaluation of own functioning (Diener, 1984). However, this traditional conceptualization has been challenged over the past fifteen years by three important developments. The first was the

emergence of multi-dimensional approaches to measuring well-being (Warr, 1987; Ryff, 1989). Multi-dimensional approaches may results in more precise assessments of the relationships among well-being and other concepts than global measures, thus fostering our understanding of the nature, causes, and consequences of well-being. The second development involved a shift from approaches focusing on negative aspects of well-being, such as burnout, to a more positive (or ‘salutary’) approach to well-being (Antonovsky, 1987; Ryff & Singer, 1996), tapping aspects like competence and personal growth. Including the positive aspects of well-being as well may result in a richer conceptualization of well-being, thus increasing its ecological validity. The third development was that well-being was construed as a phenomenon that should be examined in the context of a specific domain (e.g, the work environment, Warr 1987) rather than in global, ‘context free’ terms.

Building on previous work of Warr (1987, 1994) and Ryff (1989; Ryff & Singer, 1998), the present study addresses the issues mentioned above in the context of well-being among teachers. In the current study occupational well-being is construed as a positive evaluation of various aspects of one’s own functioning at work, including an affective, motivational, behavioral, cognitive, and psychosomatic dimension. The choice of these dimensions is based on two important multi-dimensional conceptualizations of well-being (those of Ryff, 1989, and Warr, 1987, 1994). The key issue to be addressed in the present study was whether occupational well-being among teachers is better understood as a multi-dimensional than as a traditional uni-dimensional phenomenon. Below, we first discuss two important multi-dimensional approaches to measuring well-being. Then a 5-dimensional model for occupational well-being among teachers is presented. This model is tested using confirmatory factor analysis, drawing on data from 1352 Dutch teachers.

Ryff’s model of well-being. Over the last decade, Carol Ryff and her co-workers have developed an influential context-free model of well-being (see Ryff, 1989; Ryff & Keyes, 1995; Ryff & Singer, 1996, 1998). Building on the multi-dimensional frameworks of positive psychological functioning proposed by, among others, developmental psychologists such as Erikson (1959) and clinical psychologists like Maslow (1959), Ryff presented a six-dimensional model of well-being (see Ryff & Singer, 1996, 1998, for discussions of the background of her model). These dimensions are:

1. self-acceptance: positive evaluations of oneself and of one’s past life;
2. environmental mastery: the capacity to manage effectively one’s life and surrounding world;
3. autonomy: the sense of self determination and the ability to resist social pressures to think and act in certain ways;

4. positive relations with others, expressed by, for instance, a genuine concern about the welfare of others;
5. personal growth: the sense of continued growth and development as a person as well as openness to new experiences;
6. purpose in life: the belief that one's life is purposeful and meaningful and that one has aims for living.

Confirmatory factor analysis supported the distinction among these concepts, and demonstrated that the relations among them could be accounted for by a single latent second-order factor (Ryff & Keyes, 1995). Thus, although different facets of well-being can be distinguished empirically and theoretically, at a higher level of abstraction these facets still tap the same, underlying phenomenon.

Warr's model of well-being. In his multi-dimensional model for investigating occupational well-being, Warr (1987, 1990a, 1990b, 1994) distinguished among four primary components (affective well-being, competence, autonomy, and aspiration, respectively) and a fifth component ('integrated functioning') that reflects the person as a whole. Integrated functioning can be construed as an 'overall' evaluation that encompasses the four primary dimensions.

Affective well-being has been examined in a large number of studies focusing on 'specific' aspects such as job satisfaction, depression, and burnout (taken as a single concept, cf. Taris, Schreurs, & Schaufeli, 2000). A more general approach to affective well-being is taken in studies on the structure of emotions and mood (among others, Russell & Steiger, 1982; Zevon & Tellegen, 1982; Watson & Tellegen, 1985). In these studies, three major and independent bipolar (positive and negative affect) dimensions emerged:

1. satisfaction with 'pleased' on the positive pole and 'displeased' on the negative pole;
2. tension with 'comfortable' on the positive pole and 'anxious' on the negative pole;
3. mood with 'enthusiastic' on the positive pole and 'depressed' on the negative pole.

Current instruments for measuring occupational well-being usually tap one of the three dimensions mentioned above. For instance, job satisfaction and organizational commitment are associated with the first dimension (satisfaction), whereas tension at work and emotional exhaustion (part of the burnout syndrome, Maslach, 1993) are related to the second (tension) and third (mood) dimension, respectively. Although some studies found that two bipolar dimensions adequately represented the data as well

(e.g., Russell, Lewicka, & Toomas, 1998), the important thing to note there is that many current instruments for measuring occupational well-being primarily tap the affective dimension of well-being.

Aspiration refers to people showing interest in the environment, engaging in motivated activity, and seeking to extend themselves in ways that are personally significant (earlier theorists used terms like 'personal growth' and 'self actualization, e.g., Maslow, 1959). Low aspiration is seen in apathy and acceptance of the status quo, no matter how unsatisfactory. Job related aspiration refers to the degree to which a person seeks out challenging goals in the job. Related terms are intrinsic motivation and growth-need strength.

Autonomy refers to the degree to which people can resist environmental demands and follow their own opinions and actions. Many theorists (e.g., Warr, 1987) have pointed out that too much as well as too little autonomy can have negative consequences.

Competence covers a person's (psychological) ability to cope with problems and act on the environment with at least a moderate amount of success. In other studies terms such as self-efficacy (Bandura, 1977), environmental mastery (Jahoda, 1958), and personal accomplishment (Maslach & Jackson, 1986) have been used to describe similar concepts.

Teacher model of well-being

When reviewing the conceptualizations proposed by Ryff and Warr, similar features of positive psychological functioning emerge. These points of convergence in the prior theorizing constitute the core dimensions of the model of well-being pursued in this research. We propose to distinguish among five components of teacher well-being.

In Table 1 our model is presented in relation to the models proposed by Warr and Ryff.

The **affective component** is more differentiated than in other approaches. In addition to positive and negative affect (cf. Watson & Tellegen, 1985) our model includes emotional exhaustion, job satisfaction, and organizational commitment. Emotional exhaustion refers to a depletion of one's energetic resources, which is caused by daily involvement with the personal and social needs of, for instance, students (Maslach, 1993). Emotional exhaustion represents the enthusiastic-depressed (Warr, 1987) or the depression-pleasure (Watson & Tellegen, 1985) axis.

■ TABLE 1

THE STRUCTURE OF OCCUPATIONAL WELL-BEING

DIMENSIONS OF WELL-BEING	RYFF (1989); RYFF & SINGER, (1996)	WARR (1987,1994)	PRESENT APPROACH
1. Affective well-being	<ul style="list-style-type: none"> • Self-acceptance 	<ul style="list-style-type: none"> • Affective well-being (anxiety, depression) 	<ul style="list-style-type: none"> • Affective well-being (positive and negative) • Commitment to the school • (Lack of) emotional exhaustion
2. Professional well-being (motivation)	<ul style="list-style-type: none"> • Personal growth • Purpose in life • Autonomy 	<ul style="list-style-type: none"> • Aspiration • Competence • Autonomy 	<ul style="list-style-type: none"> • Aspiration • Autonomy • Competence
3. Social well-being (behavior)	<ul style="list-style-type: none"> • Environmental mastery • Positive relations with others 		<ul style="list-style-type: none"> • (Lack of) depersonalization students • (Lack of) depersonalization colleagues • Adequate social functioning students • Adequate social functioning colleagues
4. Cognitive well-being			<ul style="list-style-type: none"> • (Lack of) cognitive weariness
5. Psychosomatic well-being			<ul style="list-style-type: none"> • (Lack of) psychosomatic complaints

The inclusion of a measure of job satisfaction seems important, since it is traditionally the most widely used global indicator of job related affective well-being, representing the pleasure axis (Warr, 1987), also among teachers (e.g., Travis & Cooper, 1993).

Affective organizational commitment (i.e., the teacher's identification with and involvement in the school) is another aspect that represents the pleasure axis because it explicitly refers to the relation of the teacher with the organization in which he or she is employed. As a result, our conceptualization of occupational well-being covers all three levels that are crucial for the teacher's functioning: students, colleagues and the school.

Professional well-being (or motivation) is represented by the concepts of aspiration, professional competence (cf. Maslach, 1993) and autonomy. The latter seems to be in particular important in the teacher setting, because, although teachers consider themselves as professionals with a great amount of autonomy, their autonomy is restricted to the classroom (CTL, 1993). Tensions typically arise due to the discrepancy between having much autonomy within the classroom, and considerably less outside of it.

In a similar vein, in the **social well-being (behavior)** dimension we distinguished between adequate social functioning in the relations with students and colleagues (cf. Kinnunen & Salo, 1994). In addition, social well-being is also reflected by the extent to which teachers feel committed to their students and colleagues (i.e., absence of depersonalization toward students and

colleagues). Depersonalization refers to a lack of motivation in terms of an indifferent and negative attitude toward people one is working with (Maslach, 1993). Following Golembiewski, Boudreau, Munzenrider, and Lou (1996), we distinguished between depersonalization with respect to students (the traditional notion), and depersonalization with respect to colleagues, since most teachers work in teams.

Cognitive weariness can be considered an extension of the concept of burnout, in that it reflects the extent to which teachers are able to concentrate on, for instance, teaching and correcting the work of their students. Teaching requires a certain amount of alertness. A structural loss of concentration can be regarded as a sign of lower well-being.

Finally, **psychosomatic complaints** are included since such symptoms are observed among teachers (e.g., Travers & Cooper, 1993). Although it can be argued that physical health is an outcome of well-being, we adopt Kinnunen, Parkatti and Rasku's (1994) view, who consider the evaluation of one's physical functioning in terms of the presence or absence of psychosomatic symptoms an integral and constitutive component of subjective well-being.

Summarizing, the present study construes well-being as a multi-faceted concept, consisting of five dimensions (i.e., affective, professional, social, cognitive, and psychosomatic well-being). Our main objective is to validate our concept of well-being by testing the 5-factor model of teacher well-being against the aforementioned traditional one-dimensional model.

METHOD

Sample

Dutch teachers were asked to participate in a study to monitor their health complaints in several aspects of the working life. Listwise deletion of missing values resulted in a final sample of 1252 teachers (49% male, $M_{age} = 45.0$ years ($SD = 8.1$); on average the participants had 19.0 years of teaching experience ($SD = 8.3$), and they were on average employed for 31 hours per week ($SD = 9.0$). From these teachers, 59% were employed in primary schools, 28% in secondary schools and 13% in vocational schools.

Instruments

Affective well-being comprises the following four scales:

1. The **affective well-being** scale consists of twelve mood-items (Warr, 1990a; 1990b). Teachers were asked to indicate on a 5-point scale ranging from 'never' (1) to 'always' (5) how often their job had made them feel, for instance, optimistic or cheerful over the past month. A global sumscore was computed by reversing negative items. Previous research has failed to confirm Warr's (1990b) distinction between 'mood'-related and 'tension'-related items (Daniels, Brough, Guppy, Peters-Bean & Weatherstone, 1997). Therefore, a one-factor solution was preferred ($\alpha = .92$).
2. **Job satisfaction** was measured using four items from the questionnaire 'Stress at School' (Schaufeli, Hoonakker, & Van Horn, 1996). Each item referred to the extent to which teachers were satisfied with their students, colleagues, the school and teaching in general, respectively. (e.g., "Taken together, how satisfied are you with your students") Response categories varied on a 5-point scale ranging from 'very dissatisfied' (1) to 'very satisfied' (5) ($\alpha = .68$).
3. **Organizational commitment** was measured using six items of Mowday, Steers, and Porter's (1979) Organization Commitment Questionnaire (OCQ). Each of these items had to be answered on a 5-point scale ranging from 'completely disagree' (1) to 'completely agree' (5) ($\alpha = .89$). (e.g., "I care for the school").
4. Finally, **emotional exhaustion** was assessed using the Dutch version of the Maslach burnout Inventory for teachers (the MBI-NL-ES, Van Horn & Schaufeli, 2001). The scale consists of 8 items, each rated on a 7-point Likert scale ranging from 'a few times a year' (0) to 'every day' (6) (e.g., "I feel emotionally drained by my work") ($\alpha = .92$).

Professional well-being (motivation) is represented by the following three scales:

1. Adopting the concept of aspiration as formulated by Warr (1990b), the **aspiration** scale consists of 6 items (e.g., "In my work I seek new challenges"). A few items were added to the original scale to fit the work setting of teachers. The response scale was a 5-point scale ranging from strongly 'disagree' (1) to 'strongly agree' (5) ($\alpha = .75$).
2. **Competence** was assessed using the Dutch version of the Maslach burnout Inventory for teachers, MBI-NL-ES (Van Horn & Schaufeli, 2001). The scale consists of 7 items, each rated on a 7-point scale ('a few times a year' (0) to 'every day' (6)). Items from the competence scale refer, for instance, to the extent to which teachers deal effectively with problems of students ($\alpha = .86$).
3. **Autonomy** was measured using 7 items (e.g., "In my work I make my own decisions."). This scale is based on a related concept as defined by Warr (1990a, 1990b). A few items were added to the original scale to fit the work setting of teachers. Response categories varied on a 5-point scale from strongly 'disagree' (1) to 'strongly agree' (5) ($\alpha = .74$).

Social well-being (behavior) was assessed using the following four scales:

1. Depersonalization toward students was assessed using the MBI-NL-ES (Van Horn & Schaufeli, 2001). The scale consists of 7 items, each rated on a 7-point scale ranging from 'a few times a year' (0) to 'every day' (6) (e.g., "I don't care what happens to some students.") ($\alpha = .86$).
2. **Depersonalization** toward colleagues refers to the same concept as described for students but focuses on teacher's attitude toward colleagues. (e.g., "I don't care what happens to my colleagues.") ($\alpha = .85$).
3. Adequate **social functioning in the relationships with students** was measured using 6 items (e.g., "I feel comfortable in interactions with students.") Response categories varied on a 5-point scale ranging from 'never' (1) to 'always' (5) ($\alpha = .76$).
4. Adequate **social functioning in the relationships with colleagues** was measured using 11 items (e.g., "My colleagues ask me for advice and support."). Response categories varied on a 5-point scale ranging from 'never' (1) to 'always' (5). ($\alpha = .86$).

Cognitive well-being was represented by a seven-item cognitive weariness scale, which was developed by the authors. The scale refers to loss of concentration at work, for instance, "I have trouble concentrating". Each statement was rated on a 7-point scale ranging from 'a few times a year' (0) to 'every day' (6) ($\alpha = .92$).

Finally, **psychosomatic well-being** was assessed using the psychosomatic health complaints scale consisting of 23 items from the Inventory of Subjective Health (VOEG) (Dirken, 1969). The scale measures a variety of psychosomatic health complaints such as headaches, cardiovascular problems, and stomach aches. Response categories were dichotomous (1 = 'yes', 0 = 'no') ($\alpha=.83$). The Central Bureau of Statistics in The Netherlands uses this instrument to assess the general health of the Dutch population.

Analyses

To analyze the structure of well-being, first- and second-order confirmatory factor-analyses were performed on the scales described above. As Table 1 shows, three of the five dimensions of well-being (i.e., affect, motivation, and behavior) are covered by at least three distinct scales. Thus, for each of these three dimensions it was possible to create a latent variable on which the corresponding scales load. For the dimensions of cognitive and psychosomatic well-being 'parcels' of items were created using the procedure as suggested by Bagozzi and Yi (1988). In a first step, a one-factor model was fitted for all the items belonging to a particular scale. In a second step, separate indicators for each scale were formed by selecting items on the basis of their loadings, alternating items with high and low loadings. In this vein, three item parcels were created for the cognitive dimension of well-being and four for the psychosomatic dimension of well-being.

Confirmatory factor analyses (CFA, Jöreskog & Sörbom, 1993) were conducted to examine the factor structure of occupational well-being among teachers. Models to be compared:

- M1: A one-factor model that assumes that all aspects of teacher well-being load on one single factor. This model corresponds with the assumption that well-being can be considered as a single, uni-dimensional concept (Diener, 1984).
- M2: A 5-factor orthogonal model representing the five factors described in our model of teacher' well-being. In this model it is assumed that the five factors are not correlated.
- M3: A 5-factor oblique model representing five interrelated factors as described in our model of teacher well-being.
- M4: A 5-factor orthogonal model with a single third-order overall factor representing well-being.

■ **TABLE 2**

COMPARISON OF THE FIT OF SEVERAL CONFIRMATORY FACTOR-ANALYTIC MODELS

MODEL	DF	χ^2	NNFI	CFI	AGFI	RMSR
1 - Factor (M1)	135	5623.99	.60	.61	.49	.12
5 - Factor orthogonal (M2)	135	5526.29	.23	.32	.37	.31
5 - Factor oblique (M3)	125	2299.23	.96	.97	.96	.07
5 - Factor orthogonal (M4)	130	2810.32	.94	.95	.95	.08
with 1 overall 3 rd order factor						

Note. CFI = Comparative fit index; AGFI = Adjusted goodness-of-fit index; RMR = root mean squared residual; NNFI = non-normed fit index.

RESULTS

Comparison of four models for well-being

The four models for occupational well-being among teachers were tested by means of confirmatory factor analyses. Table 2 presents the fit indices for the four models for teacher well-being. The association among the scales is not adequately accounted for by a single underlying dimension (M1). The 5-factor orthogonal model (M2) also does not account very well for the relations among the scales. The oblique 5-factor model (M3) fitted the data best, suggesting that teacher well-being is best understood in terms of empirically distinct, but related dimensions.

To obtain insight in the degree to which the five factors all tapped the same dimension, a third-order confirmatory factor analysis was conducted (model M4). Although this model fitted the data less well than the oblique 5-factor model (M3), the fit was still quite acceptable.

In Table 3 the first- and second order factor loadings of the scales on the underlying dimension are presented.

As Table 3 shows, all scales load quite substantial on their respective first-order factor. The loadings of the five first-order factors on the common second-order factor were substantial as well with loadings ranging from .60 to .92. The highest loadings were found for professional, social, and (especially) affective well-being, suggesting that these dimensions constitute the core of the concept of work-related well-being. Cognitive and psychosomatic well-being seem somewhat less central to this concept, in spite of the fact that loadings exceeding .60 are generally quite acceptable.

■ **TABLE 3**

FIRST- AND SECOND-ORDER LOADINGS OF THE SCALES ON THE UNDERLYING DIMENSIONS (FIRST ESTIMATE: LOADING FOR CALIBRATION SAMPLE; SECOND LOADING: LOADING FOR VALIDATION SAMPLE, ESTIMATES FULLY STANDARDIZED ACROSS SAMPLES)

	LOADINGS ON FIRST-ORDER FACTOR	LOADINGS ON SECOND-ORDER FACTOR
AFFECTIVE WELL-BEING		
• affective well-being	.86	.92
• satisfaction	.75	
• organizational commitment*	.60	
• emotional exhaustion	.83	
PROFESSIONAL WELL-BEING		
• aspiration	.70	.79
• competence	.64	
• autonomy	.59	
SOCIAL WELL-BEING		
• depersonalization students*	.65	.83
• depersonalization colleagues*	.59	
• social functioning students	.58	
• social functioning colleagues	.66	
COGNITIVE WELL-BEING		
• cognitive weariness (1)*	.85	.68
• cognitive weariness (2)*	.95	
• cognitive weariness (3)*	.88	
PSYCHOSOMATIC WELL-BEING		
• psychosomatic complaints (1)*	.84	.60
• psychosomatic complaints (2)*	.73	
• psychosomatic complaints (3)*	.69	
• psychosomatic complaints (4)*	.78	

* = scale reversed. NB. All effects significant at $p < .001$.

DISCUSSION

Contrary to the traditional approach of measuring well-being as a person's evaluation of his/her overall functioning in all aspects of his or her life, the present study focused on the evaluation of one particular aspect of life (i.e., the work setting) of a particular occupational group (i.e., teachers). Based on

the multi-dimensional well-being approaches of Warr (1987, 1990a,b, 1994) and Ryff (1989; Ryff & Keyes, 1995), a five-dimensional model for teacher well-being was proposed, including an affective, professional, social, cognitive weariness and psychosomatic dimension.

Results from confirmatory factor analyses supported our assumption that the five-factor model would fit the data better than the traditional one-factor model (Diener, 1984). Affective well-being (affective dimension), emotional exhaustion (Affective dimension), and cognitive weariness (Cognitive dimension) were the most central concepts of teacher well-being. In general, these findings are in accordance with Warr's (1987) and Maslach's (1993) assumptions that well-being is especially reflected in the emotional and affective state of a person. Empirical studies have indeed demonstrated that burned-out teachers report in particular higher levels of emotional exhaustion (e.g., Friedman, 1991). It has been argued that problems in the interactions with students (e.g., students' misbehavior) underlie these elevated feelings of emotional weariness (e.g., Borg & Falzon, 1989), because nowadays, teaching is more than just transferring knowledge. More specifically, interactions with students are more personal, implying intervention in students' lives, providing instruction and shaping students' individual growth (e.g., Rosenholtz & Simpson, 1990). As a consequence, the psychological and emotional demands made upon teachers are heavier.

Organizational commitment (Affective dimension) seemed to be less central to teacher well-being. The relatively low importance of organizational commitment to teacher well-being might be accounted for by Meyer and Allen's (1991) reasoning, that (affective) commitment represents a general psychological orientation in which equity and expectancy processes underlie the extent to which an employee feels committed to an organization. From this perspective, it seems plausible that organizational commitment only reflects well-being among those employees for whom it is relevant. Moreover, Meyer and Allen (1991) also assume that attachment to an organization is conditional. That is, if employees believe that other organizations provide similar work conditions, their current experiences might have little impact on the extent to which they feel committed to the organization. This latter reasoning seems to be particularly salient for the school setting, because school policies tend to be very similar across schools in The Netherlands.

Results presented in this study are limited concerning the fact that self-report measures were used, implying that higher correlations among variables could result from common method variance or from respondents' tendency to provide answers that are consistent with previous answers.

Despite this limitation, we believe that a multi-dimensional approach of well-being such as the one presented in this study allows for the measurement of both the negative (or distressing) aspects of well-being, and its positive (or ‘salutary’) aspects (Antonovsky, 1987; Ryff & Singer, 1996). Previous research often used measures tapping the absence of well-being, rather than well-being (e.g., the GHQ measures psychosomatic complaints; the DAC taps feelings of depression). Moreover, a differentiated profile of various positive and negative dimensions of occupational well-being will offer more handles for developing practical interventions (Warr, 1987, 1994).

REFERENCES

- Antonovski, A. (1987).
Unraveling the mystery of health:
How people manage stress and stay well.
San Francisco: Jossey-Bass.
- Bagozzi, R.P., & Heatherton, T.F. (1994).
A general approach to representing multifaceted
personality constructs: Application to state self-esteem.
Structural Equation Modeling, 1, 35-67.
- Bandura, A. (1977).
Self-efficacy: Toward a unifying theory of behavioral change.
Psychological Review, 84, 191-215.
- Borg, M.G. & Falzon, J.M. (1989).
Sources of teacher stress in Maltese primary schools.
Research in Education, 46, 1-16.
- Commissie Toekomst Leraarschap (CTL) (1993).
Een beroep met perspectief: De toekomst van het leraarschap
[A profession with prospect: The future of teaching professions].
Leiden, The Netherlands: Distributiecentrum DOP.
- Daniels, K., Brough, P., Guppy, A., Peters-Bean, K.M.,
& Weatherstone, L. (1997).
A note on modification to Warr's measures
of affective well-being at work.
Journal of Occupational & Organizational Psychology, 70, 129-138.
- Diener, E. (1984).
Subjective well-being.
Psychological Bulletin, 95, 542-575.
- Dirken, J.M. (1969).
Arbeid en stress:
Het vaststellen van aanpassingsproblemen in werksituaties
[Work and stress:
Determining problems in adapting to work settings].
Groningen: Wolters-Noordhoff.
- Friedman, I.A. (1991).
High- and low-burnout schools:
School culture aspects of teacher burnout.
Journal of Educational Research, 84, 325-333.
- Golembiewski, G.T., Boudreau, R.A., Munzenrider, R.F., & Lou, H. (1996).
Global burnout:
A worldwide pandemic explored by the phase model.
Greenwich, CT: JAI Press.

- Horn, J.E., van, & Schaufeli, W.B. (2001).
The Maslach Burnout Inventory:
The Dutch Educators Survey (MBI-NL-ES).
Utrecht: Utrecht University,
Department of Social and Organizational psychology.
- Jahoda, M. (1958).
Current concepts of positive mental health.
New York: Basic Books.
- Jöreskog, K.G., & Sörbom, D. (1993).
LISREL-8 (computer manual).
Chicago: Scientific Software.
- Kinunnen, U., Parkatti, T., & Rasku, A. (1994).
Occupational well-being among teachers in Finland.
Scandinavian Journal of Educational Research, 38, 315-332.
- Maslach, C. (1993).
Burnout: A multi-dimensional perspective.
In W.B. Schaufeli, C. Maslach & T. Marek (Eds.),
Professional burnout:
Recent developments in theory and research (pp. 19-32).
Washington, DC: Taylor & Francis.
- Maslach, C. & Jackson, S.E. (1986).
Maslach Burnout Inventory.
Palo Alto, CA: Consulting Psychologists Press.
- Maslow, A.H. (1959).
New knowledge in human values.
New York: Harper & Row.
- Meyer, J.P. & Allen, N.J. (1991).
A three-component conceptualization of organizational commitment.
Human Resource Management Review, 1, 61-89.
- Mowday, R.T. Steers, R.M., & Porter, L.W. (1979).
The measurement of organizational commitment.
Journal of Vocational Behavior, 14, 224-247.
- Rosenholtz, S.J., & Simpson, C. (1990).
Workplace conditions and the rise and fall of teachers' commitment.
Sociology of Education, 63, 241-257.
- Russell, J.A., & Steiger, J.H. (1982).
The structure in persons' implicit taxonomy of emotions.
Journal of Research in Personality, 16, 447-469.
- Russell, J.A., Lewicka, M., & Toomas, N. (1989).
A cross-cultural study of a circumplex model of affect.
Journal of Personality & Social Psychology, 57, 848-856.
- Ryff, C.D. (1989).
Happiness is everything, or is it?
Exploration of the meaning of psychological well-being.
Journal of Personality & Social Psychology, 57, 1069-1081.

- Ryff, C.D. & Keyes, C.L.M. (1995).
The structure of psychological well-being revisited.
Journal of Personality & Social Psychology, 69, 719-727.
- Ryff, C.D., & Singer, B. (1996).
Psychological well-being: Meaning, measurement,
and implications for psychotherapy research.
Psychotherapy & Psychosomatics, 65, 14-23.
- Ryff, C.D., & Singer, B. (1998).
The contours of positive health.
Psychological Inquiry, 9, 1-28.
- Schaufeli, W.B., Hoonakker, P., Van Horn, J.E. (1996).
Vragenlijst 'Stress op School' (SOS)
[Questionnaire 'Stress at School'].
Utrecht: Utrecht University,
department of Social and Organizational psychology.
- Taris, T.W., Schreurs, P.J.G., & Schaufeli, W.B. (2000).
Construct validity of the Maslach Burnout Inventory –
General Survey: A two sample examination of its
factor structure and correlates.
Work & Stress, 13, 223-237.
- Travers, C.J. & Cooper, C.L. (1993).
Mental health, job satisfaction and occupational
stress among UK teachers.
Work & Stress, 7, 203-219.
- Warr, P.B. (1987).
Work, unemployment, and mental health.
Oxford: Oxford University Press.
- Warr, P.B. (1990a).
Decision latitude, job demands, and employee well-being.
Work & Stress, 4, 285-294.
- Warr, P.B. (1990b).
The measurement of well-being and other aspects
of mental health.
Journal of Occupational Psychology, 63, 193-210.
- Warr, P.B. (1994).
A conceptual framework for the study of work and mental health.
Work & Stress, 8, 84-97.
- Watson, D. & Tellegen, A. (1985).
Toward a consensual structure of mood.
Psychological Bulletin, 98, 219-235.
- Zevon, M.A. & Tellegen, A. (1982).
The structure of mood change: An idiographic / nomothetic
analysis.
Journal of Personality & Social Psychology, 43, 111-122.

- Horn, J.E. van, Schaufeli, W.B., & Taris, T.W. (2001). Lack of reciprocity among Dutch teachers: Validation of reciprocity and their relation to stress and well-being. *Work & Stress*, 15, 191-213.

LACK OF RECIPROCITY AMONG DUTCH TEACHERS

VALIDATION OF RECIPROCITY INDICES
AND THEIR RELATION TO STRESS AND WELL-BEING

SUMMARY

This research presents the results of two related studies on the convergent and construct validity of three measures of reciprocity in exchange relationships at work. In Study 1, 71 Dutch teachers were interviewed about their specific investments and outcomes in the exchange relationships with their students, colleagues, and school. ANOVA revealed that they reported significantly more investments than outcomes, and that the number of reported investments and outcomes mentioned varied as a function of the type of exchange relationship. Building on these results, multi-item scales were created to assess reciprocity at a detailed level for each of the three exchange relationships. Study 2 validated these specific reciprocity measures by relating them to two global assessments of reciprocity (convergent validity) as well as to measures of job stress and well-being

(construct validity). LISREL-analysis of data obtained from a fresh sample of 224 teachers revealed that for each type of exchange relationship there were significant, consistent and meaningful relationships among the three reciprocity measures. Further, hierarchical regression analysis showed that the reciprocity measures were differentially related to job stressors and measures of well-being. Implications are discussed.

INTRODUCTION

According to social exchange theory, people pursue a balance between what they ‘invest’ in a particular relationship (e.g., time, attention, skills, effort) and what they receive in return from it (among others, status, appreciation, gratitude, and pay, cf. *La Gaipa, 1977*). Any disturbance of this balance will lead to feelings of inequity, stress, and, eventually, to low well-being. Further, the stress ensuing from a disturbed balance between investments and benefits will lead to attempts to restore it (*Adams, 1963; Walster, Walster, & Berscheid, 1978*). Applications of social exchange theory started out with laboratory experiments, initially focusing on people’s reactions to wage inequity (*Adams, 1963, 1965*). Later, equity theory was also found relevant in natural settings, such as intimate relationships (e.g., *Buunk & Van Yperen, 1991; Traupmann, Petersen, Utne, & Hatfield, 1981*), relationships at work in general (e.g., *Iverson & Roy, 1994; Perry, 1993*) and in the teaching setting in particular (*Van Horn, Schaufeli & Enzmann, 1999*).

Although the value of social exchange theory has been demonstrated in various settings, progress in this area has been hampered by the fact that as yet no standard operationalization of equity has emerged. In his seminal (1965) paper, *Adams* proposed that people evaluate their relationships with others by assessing their own input-outcome ratio against the input-outcome ratio of a comparison other. While several investigators used variations on this particular equity measure (e.g., *Anderson, 1976; Walster, 1975*), others employed global measures (such as the single-item *Hatfield Global Measure of equity*, which asks people to evaluate their own inputs against their own outcomes; cf. *Hatfield, Traupman, Sprecher, & Hay, 1985*), or detailed assessments of the investments in and outcomes gained from a particular relationship (e.g., *Geurts, Schaufeli, & Buunk, 1993; VanDierendonck, Schaufeli, & Buunk, 1996*).

As there are several operationalizations of equity in use, one important question would seem whether these measures can be used interchangeably. Stated differently, to which degree do different measures of inequity tap the same construct (convergent validity)? Unfortunately, research relevant to the issue is scarce and the results seem to be at odds with each other.

For instance, whereas Prins, Buunk and Van Yperen (1993) asserted that different assessments of equity led to similar results, Lujansky and Mikula (1983) reported poor intercorrelations between specific and global measures. The latter authors concluded that “... it is not legitimate for a researcher to simply use global instead of detailed ratings in order to facilitate the investigation, because these two procedures measure quite different things” (p. 104).

Thus, although investigators do seem to worry that global measures of equity may not reflect the same concept as detailed measures, there is little empirical evidence relating to this matter. The present research was designed in an attempt to gain more insight into this issue. Following Lujansky and Mikula (1983), who emphasize the necessity to measure all relevant inputs and outcomes in an exchange relationship, Study 1 maps the investments and outcomes teachers find relevant in their exchange relationships with students, colleagues, and their school, respectively. Based on the results of Study 1, a specific reciprocity measure for each exchange relationship is developed. In Study 2 the validity of this measure is examined in conjunction with the validity of a global and a self-rated reciprocity index.

Social exchange in the teaching setting

Adams (1965) argued that social exchange processes “... are relevant to any social situation in which an exchange takes place, whether the exchange be the type taking place between man and wife, between football teammates or between teacher and student ...” (p. 422, our italics). People are likely to expect to be rewarded for their investments. This should be no different for exchange relationships maintained at work. For example, nurses attend to their patients and expect to be rewarded for their investments in the form of, for instance, the patients’ gratitude. In a similar vein, teachers need to feel valued in their work, for instance, through positive feedback such as students’ interest and motivation (Weisfelt, 1993).

Evidence was found for the relevance of social exchange processes not only between teachers and students (e.g., Peeters, Geurts, & Van Horn, 1998; Van Horn et al., 1999), but also between teachers and their colleagues (e.g., Taris, Peeters, Le Blanc, Schreurs & Schaufeli, in press) and between teachers and the school (e.g., Peeters et al., 1998; Van Horn et al., 1999). Concerning the latter, employees tend to reify the organization they work for (Levinson, 1965), such that they perceive themselves to be in an exchange relationship of costs and benefits with the organization to which they belong. In short, the current research focuses on three types of exchange relationships, namely with students, colleagues and the school.

Pritchard (1969) argued that at the two extremes of a continuum, social exchange relationships can be either intimate or impersonal. People would be more sensitive to (discrepancies between) their investments in, and outcomes from, an exchange relationship when the exchange relationship is more personal. As the frequency and intensity of interaction differ in each of the exchange relationships mentioned above, we expect that the results from our present research will vary with the level of ‘psychological contact’ in each of these relationships. The level of personal contact is assumed to be highest in the relationship with students, followed by the relationship with colleagues, and finally with the school.

The current research presents two related studies in which three reciprocity indices are validated. More specifically, in Study 1 the investments and outcomes teachers report in interviews are used to develop a reciprocity index at a detailed level (specific reciprocity index). In Study 2, this specific reciprocity index is validated along with two more global reciprocity indices to investigate the convergent validity. Moreover, Study 2 also explores the construct validity of the three reciprocity indices focusing on the work related stressors (e.g., tensions in the interaction with students) and indicators of well-being (e.g., burnout) that were found salient in the teacher setting in previous research (e.g., Blase, 1986; Hart, 1987; Van Horn et al., 1999; Weisfelt, 1993).

STUDY 1

A QUALITATIVE STUDY OF TEACHERS’ INVESTMENTS AND OUTCOMES

People’s evaluation of the equitableness of a particular exchange relationship may depend on their subjective assessment of the value and relevance of specific investments in and outcomes from that relationship (Lujansky & Mikula, 1983; Prins et al., 1993; Van Horn et al., 1999). However, in most equity studies no efforts are made to identify the specific investments in and outcomes from exchange relationships at work (e.g., Schaufeli, Van Dierendonck & Van Gorp, 1996; Van Dierendonck et al., 1996). In a sense, the current study is the first to let teachers ‘speak for themselves’: What do they feel are important investments in their jobs? What are the important rewards they receive in return?

In this study teachers were asked to list their investments in and outcomes from the exchange relationships with students, colleagues, and the school. While categorizing the investments and outcomes mentioned by the

participants, we distinguished between the technical (or *task-oriented*) aspects of the job (e.g., autonomy, decision latitude, and variety) and the broader social milieu in which the work is done (the *relationship-oriented* aspects of the job; cf. Hackman & Oldham, 1976; Van Vianen & Ten Bruggencate, 1995). Task oriented aspects refer to those activities that involve, for instance, teaching and coaching of students, and formal meetings with colleagues and the principal. Relationship oriented aspects include those factors with a social connotation such as respect, support, and appreciation.

Hypothesis 1. Based on our assumption that the levels of psychological contact differ for each relationship, we expect the highest total number of investments and outcomes to be reported for the exchange relationship with students. A lower total number of investments and outcomes will be reported for the exchange relationship with colleagues, and the lowest numbers of investments and outcomes will be mentioned for the exchange relationship with the school.

Hypothesis 2a. Focusing on the distinction between task-oriented and relationship-oriented work aspects, we expect that the number of reported investments and outcomes in task oriented and relationship oriented aspects will be more or less equal for the exchange relationship with students.

We hold this assumption because investments in (outcomes from) task oriented aspects are inherent to the teaching profession and high investments in (outcomes from) relationship oriented aspects derive from our notion that the level of ‘psychological contact’ in the exchange relationship with students is high.

Hypothesis 2b. We expect that for colleagues the number of reported task oriented investments and outcomes will be significantly lower than the number of relationship-oriented investments and outcomes. Teaching implies a rather solitary activity, typically resulting in limited work related interactions with colleagues.

Hypothesis 2c. It is expected that at organizational level, the number of task-oriented investments and outcomes will be significantly higher than the number of relationship-oriented investments and outcomes.

Method

Sample

Study 1 was conducted among 92 teachers from two Dutch secondary schools, of which 71 eventually participated in the study

(a 78% response rate). 65% of the sample was male. The mean age of the participants was 44 years ($SD = 6.99$), their average work experience was 15 years ($SD = 6.98$), and they were employed for on average 23 hours per week ($SD = 6.72$).

Procedure

The study was part of a larger study conducted by a local Dutch Occupational Health and Safety Service. In 1994 and 1995 teachers were asked to participate in a so called ‘School Health Program’. A structured written questionnaire was designed to examine the working conditions and well-being of teachers. After completing this questionnaire, semi-structured interviews were held with the participants regarding their investments and outcomes in the work relationships with students, colleagues, and the school. The average duration of the interviews was 15 minutes. The present study only uses the interview data.

The instructions preceding the interview were “In your work you maintain work relationships with students, colleagues, and the school. In each of those work relationships you invest something and you get something in return. Can you specify the investments and outcomes in each type of relationship?” The interview consisted of six open-ended questions. For each exchange relationship the participants answered the following two questions: “In the relationship with (students/colleagues/school) I invest mainly in ...”, and “The most important outcomes in the relationship with (students/colleagues/school) are ...” The participants could mention as many investments and outcomes as they liked, and there was no time limit.

Reliability analysis

Two independent raters (both naive female psychology PhD’s) classified the investments and outcomes mentioned by the participants using a coding scheme devised by the authors. Each investment or outcome was first classified as being either task or relationship oriented. Then further subdivisions were made by theme. For each type of exchange relationship, both raters received a non-categorized list of investments and outcomes, as well as a brief description of the categories in the coding scheme. Interrater coefficients (Cohen’s k) were computed to assess the reliability of the raters’ judgments. Coefficients below .6 were considered poor; coefficients between .6 and .7 were considered acceptable; and coefficients of .7 and over were considered good.

■ TABLE 1

NUMBER OF TEACHERS' INVESTMENTS AND OUTCOMES MENTIONED AND INTER-RATER RELIABILITY COEFFICIENTS (COHEN'S KAPPA, k) AS A FUNCTION OF TYPE OF RELATIONSHIP AND ORIENTATION

	INVESTMENTS:			OUTCOMES:			
	TASK ORIENTED	n	k	RELATIONSHIP ORIENTED	n	k	
STUDENTS	Preparation	20	.97	Students' motivation	14	.78	STUDENTS
	Teaching	37	.86	Personal contacts	48	.61	
	Discipline	5	.65				
	Individual coaching	9	.61				
	Total	71		Total	62		
COLLEAGUES	Informal and formal contact	55	.88	Personal contacts	47	.70	COLLEAGUES
				Respect and appreciation	2	1.00	
	Total	55		Total	49		
SCHOOL	Informal and formal contact	39	.91	Personal contacts	8	.63	SCHOOL
				Respect and appreciation	4	.47	
	Total	39		Total	12		

Results

Table 1 presents a classification of the investments and outcomes mentioned by the teachers as a function of the type of exchange relationship. The teachers mentioned in total 542 investments and outcomes. Cohen's k exceeded .6 for 19 of the 22 subcategories (average k was .73, with a range of .47 to 1.00). Based on this result, the classification of investments and outcomes was considered reasonably reliable.

Number of task-oriented vs. relationship-oriented aspects

Hypothesis 1 stated that the total number of investments and outcomes would vary as a function of the type of exchange relationship. A 2 (Aspect: Task- vs. Relationship-oriented aspects) \times 3 (Target: Students, Colleagues or School) within-participants ANOVA with the number of investments and outcomes mentioned by teachers as the dependent variable revealed a main effect of Target, $F(2,140) = 103.80$, $p < .001$. Consistent with Hypothesis 1, the highest number of investments and outcomes were mentioned for the relationship with students ($M = .85$), followed by the relationship with colleagues ($M = .62$), and the relationship with the school ($M = .33$).

Hypothesis 2a stated that at students' level, the number of reported investments and outcomes in task-oriented and relationship-oriented aspects will be more or less equal. This expectation was met with the result that no

significant differences were found between the number of task-oriented investments and outcomes and relationship-oriented investments and outcomes, $F(1,70) = .94$, ns; $M_{\text{task}} = .93$; $M_{\text{rel}} = .85$). We also found support for our assumption that the number of reported task-oriented investments and outcomes ($M_{\text{task}} = .52$) will be significantly lower than the number of relationship-oriented investments and outcomes ($M_{\text{rel}} = .84$; $F(1,70) = 20.41$, $p < .001$). Against our expectation that at organizational level the number of reported task-oriented investments and outcomes ($M_{\text{task}} = .30$) would be significantly higher than the number of reported relationship-oriented investments and outcomes ($M_{\text{rel}} = .39$), no significant differences were found ($F(1,70) = 2.17$, ns) (Hypothesis 2c rejected).

Scale development

Items were formulated based on the reported investments and outcomes in each subcategory. For each exchange relationship, multi-item scales were constructed of investments and outcomes items, respectively. The resulting six scales were: 1) investments in the relationship with students; 2) outcomes from the relationship with students; 3) investments in the relationship with colleagues; 4) outcomes from the relationship with colleagues; 5) investments in the relationship with the school; 6) outcomes from the relationship with the school. Figure 1 presents the items of all scales. These scales are empirically validated in Study 2.

Conclusions

Study 1 focused on teachers' investments and outcomes in their exchange relationships with students, colleagues, and the school. The participants mentioned 542 investments and outcomes, which were classified into 22 classes of investments and outcomes. Analysis of the number of investments and outcomes mentioned by the teachers showed, consistent with Hypothesis 1, that the reported number of task- and relationship-oriented investments and outcomes varied as a function of type of relationship, starting with the highest number at students level, followed by the relationship with colleagues and finally with the school. This suggests that the exchange relationship with students is more relevant to teachers than

● FIGURE 1

SPECIFIC INVESTMENTS (I) AND OUTCOMES (O) IN THE RELATIONSHIP WITH STUDENTS, COLLEAGUES AND THE SCHOOL

A: STUDENTS

- I 1 How much do you invest in having personal contacts with students?
- I 2 How much do you invest in motivating your students?
- I 3 How much do you invest in coaching your students individually?
- I 4 How much do you invest in keeping order and discipline?
- I 5 How much do you invest in preparing lessons?
- O 1 How much appreciation do your students have for you?
- O 2 How much satisfaction do you get from the fact that your students get good grades?
- O 3 How much satisfaction do you get from the personal contacts with your students?
- O 4 How much satisfaction do you get from your students' personal growth?

B: COLLEAGUES

- I 1 How much do you invest in a brotherly interaction with colleagues?
- I 2 How much do you invest in formal contacts with your colleagues?
- I 3 How much do you invest in having personal contacts with your colleague's?
- O 1 How much interest do your colleagues show in your work?
- O 2 How much appreciation do your colleagues have for your work?
- O 3 How much respect do your colleagues have for you?
- O 4 To what extent do you feel supported by your colleagues?

C: SCHOOL

- I 1 How much do you invest in an informal relationship with the school?
- I 2 How much do you invest in having personal contacts with the school?
- I 3 How much do you invest in a formal relationship with the school?
- O 1 How much interest does the school show in your work?
- O 2 How much appreciation does the school have for your work?
- O 3 How much respect does the school have for your work?
- O 4 To what extent do you feel supported by the school?

the exchange relationships with colleagues and the school. Considering the fact that teaching implies a frequent and intense interaction with students not only at a professional level but at a social level as well, this result seems evident. It has been demonstrated in burnout studies that the frequent and intense interactions with students enhance burnout complaints among teachers (e.g., Schaufeli *et al.*, 1996; Peeters *et al.*, 1998). In order to test this idea, in Study 2 reciprocity will be considered in relation to several work-related stressors and indicators of well-being, such as burnout.

For the exchange relationships with students support was found for our expectation that teachers would more or less equally investment and gain from task-oriented aspects as they would regarding the relationship-oriented aspects. As for the exchange relationship with colleagues, teachers invest more in and gain more from relationship oriented aspects than task-oriented aspects. No significant differences were found at organizational level. These results are discussed in the overall discussion.

STUDY 2 VALIDATION OF RECIPROCITY INDICES

As noted earlier on, as yet no standardized operationalization of reciprocity has emerged, whereas evidence for the validity of current reciprocity measures is scarce. Study 2 therefore examines the convergent and construct validity of three different reciprocity measures. Following Pritchard (1969), teachers were asked to provide specific, global, and a self-rated indication of their investments and outcomes relative to their own internal standards, thus excluding the comparison with the investment-outcome ratio from others. According to Pritchard (1969), internal standards refer to the amount of outcome a person perceives as being commensurate with his or her own inputs, irrespective of the other party's rewards or investments. Thus, in Pritchard's view, feelings of inequity result from a lack of correspondence between the person's own inputs and outcomes, and not so much from social comparison as assumed in classical equity theory (cf. Adams, 1963, 1965).

Van Horn *et al.* (1999) found empirical relevance for the notion that teachers use their own internal standards to evaluate their investments in relation to their outcomes. Thus, in evaluating their investments and outcomes concerning the exchange relationship with students, colleagues and the school, teachers seem to use their own internal standards without reference to the other party (cf. Taris, Kalimo & Schaufeli, 2000, for similar results). The three reciprocity measures used in the present study are based on this notion and, therefore,

exclude social comparison as a mean to evaluate investments in and outcomes from a particular exchange relationship.

The first set of reciprocity measures included in Study 2 concerns the multi-item scales developed in Study 1. In the current study these scales were used to provide a detailed measure of the degree of reciprocity in teachers' exchange relationships with students, colleagues, and the school. Throughout the remainder of this text this reciprocity measure will be referred to as the *specific* reciprocity index. The second reciprocity measure examined here is a frequently employed variation on Adams' classical equity formula (1965). This set of reciprocity measures will be referred to as the *global* reciprocity index. The third measure (the *self-rated* index) is based on the single-item Hatfield Global Equity Measure (Hatfield et al., 1985). Basically, this measure asks people to evaluate their own inputs against their own outcomes at a global level.

Convergent validity

Theoretically, in describing the construct of reciprocity similar results should be achieved regardless of the measure being used. Lujansky and Mikula (1983) found high intercorrelations between Adams' classical equity formula and alternative formulas (Anderson, 1976; Walster, 1975), suggesting that not the application of the (alternative) formulas, but rather the measurement of equity is responsible for differences in research findings. This raises the question how the three reciprocity measures included in the present study are interrelated.

Hypothesis 1. It is assumed that the self-rated evaluation of the investments (I) in and outcomes (O) gained from a particular relationship is based on a global assessment of I and O. This global evaluation, in turn, will be based on an evaluation of specific investments in and outcomes gained from this relationship.

Thus, we expect a bottom-up rather than a top-down process (starting with an evaluation of specific investments and outcomes; cf. Crowder, 1985); alternative models will be considered, however.

Construct validity

It has repeatedly been demonstrated that tensions in the work relationships with students, colleagues, and the school are the main causes of teacher stress (e.g., Hart, 1987). In particular, tensions in the relationship with students are found to be caused by, for instance, disciplinary problems, students' demotivation and misbehavior (e.g., Hodge, Jupp & Taylor, 1994; Boyle, Borg, Falzon & Baglioni, 1995). In the relationships with colleagues and the school tensions are said to be evoked by, for instance, lack of appreciation and support

(e.g., Brown & Ralph, 1992; Smith & Bourke, 1992; Travers & Cooper, 1993). In terms of social exchange theory, in which it has been stated that (social) exchange processes underlie any relationship people are engaged (Adams, 1963, 1965), it seems logical to assume that tensions in each of the described relationships seem to be caused by discrepancies between investments and outcomes. Hence, we hold the view that stress experienced at a particular level is strongly associated with lack of reciprocity at that particular level.

Hypothesis 2a. The lack of reciprocity in the exchange relationship with students should be particularly relevant in predicting work-related stress due to problems in the interaction with students.

Hypothesis 2b. The lack of reciprocity in the exchange relationship with colleagues is significantly related to work-related stress due to tensions in the interaction with colleagues.

Hypothesis 2c. The lack of reciprocity in the exchange relationship with the school is particularly relevant in the prediction of work-related stress due to tensions in the interaction with the school.

With respect to indicators of well-being, several studies revealed that teachers whose investments exceed the outcomes gained from the relationship with their students report a greater loss of energy and more dissatisfaction than other teachers, resulting in a relatively high rate of absenteeism and sick leave (Blase, 1986). Similar results are found for the work relationships with colleagues and the organization (e.g., absenteeism, Van Yperen, Hagedoorn & Geurts, 1996). Lack of reciprocity has also been associated with burnout (see Peeters et al., 1998; Schaufeli et al., 1996; Van Dierendonck et al., 1996; Van Horn et al., 1999) and poor organizational commitment (Schaufeli et al., 1996; Taris et al., in press). It was found that poor organizational commitment specifically occurs when lack of reciprocity is experienced in the exchange of investments and outcomes with the organization (Schaufeli et al., 1996). Burnout studies have demonstrated that the relation between lack of reciprocity and burnout measured at different exchange levels is inconclusive. That is, in some studies lack of reciprocity is significantly related to burnout, irrespective of the relationship being considered (e.g., Peeters et al., 1998; Schaufeli et al., 1996), whereas in other studies burnout scores were higher only when teachers experienced lack of reciprocity at the level of the organization (Van Horn et al., 1999). Despite these inconclusive findings, we find theoretical support for our assumption that burnout is particularly related to more personal work relationships in which interactions are frequent and intense. Burnout typically refers to a long-term stress reaction, which is specifically linked to the emotional strain of working frequently and intensively with other people (Maslach, 1982).

In sum, we assume that lack of reciprocity leads to higher burnout levels in exchange relationships in which interactions are more frequent and intense. This is expressed in the following hypotheses.

Hypothesis 2d. It is expected that lack of reciprocity in the relationship with students is most strongly related to burnout, followed by a less strong relation at colleagues level, and the least strong relation at school level.

Hypothesis 2e. It is expected that the lack of reciprocity at the organizational level is related to a diminished organizational commitment.

Hypothesis 2f. Since psychosomatic complaints have been considered 'context-free' (Warr, 1987) instead of work-related, these complaints are expected to be similarly related to stressors at any exchange level.

Method

Sample

Study 2 was conducted in the context of an evaluation and monitoring project concerning the identification of work-related health risk factors (such as feelings of burnout, poor organizational commitment, and lack of reciprocity). A structured written questionnaire was distributed among 545 teachers from four secondary schools. The questionnaire was completed by 271 teachers (a 48% response rate). The mean age of the sample was 47 years ($SD = 7.3$), and 73% were men. The participants average amount of work experience was 16 years ($SD = 8.7$). A total of 61% of the teachers worked part time, and they were employed for on average 22 hours per week ($SD = 6.45$).

Measures

Specific reciprocity index. Investments and outcomes at a detailed level in each relationship was assessed using the multi-items scales from Study 1 (see Figure 1). In the relationship with students five investment items ($\alpha = .60$) and four outcome items ($\alpha = .68$) were formulated. Concerning the relation with colleagues, three investments items ($\alpha = .65$) and four outcome items ($\alpha = .70$) were included. As for the relationship with school, three investment items ($\alpha = .82$), and four outcome items ($\alpha = .91$) were included.

Scoring categories for each item varied from 'very little' (1) to 'very much' (5). For each exchange relationship an investment-outcome ratio score was calculated by dividing the investment by the outcome scale score. Generally, a relationship is considered to be reciprocal when the investments in that particular relationship equal the outcomes from it. However, as Van Tilburg,

Van Sonderen and Ormel (1991) argue, "... it is questionable whether reciprocity must be defined as a perfect match between giving and receiving. Another approach might be to accept a somewhat less stringent definition by adding a margin" (p. 64). In our study the number of teachers with a perfect match was unrealistically low. Therefore, we based the classification of teachers in the 'reciprocal' group on an arbitrary ratio margin from .9 to 1.1. A ratio score higher than 1.1 indicates that investments exceed outcomes ($I > O$), a ratio score within the .9 and 1.1 range indicates a balance between investments and outcomes ($I = O$), and a ratio score lower than .9 refers to outcomes being greater than investments ($I < O$).

Global reciprocity index. In assessing the global investment-outcome ratio, two items applied to each exchange relationship. The first was a global investment item ("How much do you put into the relationship with your students" / "... colleagues?" / "... the school?" (I)). The other was a global outcome item ("How much do you get back in return from your students" / "... colleagues?" / "... the school?" (O)). Scoring categories varied from 'very little' (1) to 'very much' (5). A ratio score was calculated dividing the global investment item by the global outcome item. The same margins as applied to the specific reciprocity index were used as to assess teachers' feelings of being under benefited ($I > O$), in balance ($I = O$), and over benefited ($I < O$).

Self-rated reciprocity index. For each relationship, teachers had to answer the following question: "When I relate my investments in the relationship with students/ ...colleagues/ ...school to the outcomes from this relationship, I receive than I invest" (1 = 'much more', 5 = 'much less'). This self-rated index was based on the Hatfield Global Measure (Hatfield et al., 1985).

Work-related stressors. Work-related stress was measured using five scales (pertaining to five distinct stressors) of the School Health Inventory (SHI, Kamphuis & Van Poppel, 1994; cf. Nyklicek et al., 1997; similar instruments to measure teacher stress were devised by Boyle, Borg, Falzon & Baglioni, 1995, and Kyriacou & Sutcliffe, 1978). The SHI is a widely used self-report instrument in the Netherlands to monitor teacher's experienced work-related stress. The 'students' scale consists of 13 items referring to the work-related stress caused by, for instance, students' misbehavior, and lack of interest and motivation ($\alpha = .91$). The 'time' scale contains 7 time pressure items such as lack of time to coach individual students, and lack of time to adequately prepare lessons ($\alpha = .82$). The 'teaching' scale consists of 10 items measuring various teaching related aspects such as inadequate teaching material, and too many hours teaching ($\alpha = .77$). The 'colleagues' scale consists of 10 items and measures the work-related stress due to colleagues who, for instance, are incompetent and unreliable ($\alpha = .88$). The 'school' scale consists of 7 items and refers to the work-related stress caused by the

school management (e.g., lack of support, poor functioning of the school management: $\alpha = .89$). Correlations between work-related stress scales are positive and significant, ranging from $r = .23$ to $.61$. Answering categories ranged from 0 ('not applicable') to 5 ('very much').

Burnout. The Dutch version of the Maslach Burnout Inventory (MBI, Maslach & Jackson, 1996) for educators (Van Horn & Schaufeli, 1998) was used to measure burnout. Previous studies among teachers (Schaufeli, Daamen, & Van Mierlo, 1993; Van Horn et al., 1999) and other human service professions (Enzmann, Schaufeli & Girault, 1993), have identified the depersonalization subscale as being the least reliable scale of the MBI. Therefore, the following two items were added to the depersonalization scale: 1) "In my job, people bother me with personal problems I don't care about", and 2) "try to keep away from personal problems of my students". Accordingly, the Dutch MBI-version for teachers comprises twenty-two items distributed across Emotional Exhaustion (EE; 8 items, e.g., "I feel emotionally drained by my work"), Depersonalization (DP; 7 items, e.g., "I don't really care what happens to some students") and Personal Accomplishment (PA; 7 items, e.g., "I deal very effectively with the problems of my students"). The reliabilities of these scales were $\alpha = .92$, $\alpha = .71$, and $\alpha = .79$ for EE, DP, and PA, respectively (note that the internal consistency of the original five item depersonalization scale was $.60$). Each statement is rated on a seven-point Likert scale ranging from 0 ('a few times a year') to 6 ('every day'). High scores on emotional exhaustion and depersonalization and low scores on personal accomplishment reflect high levels of burnout.

Organizational commitment. Organizational commitment was measured using a six-item version of Mowday, Steers and Porter's (1979) Organization Commitment Questionnaire (OCQ). A typical item is "I am proud to tell others that I am part of this school" (1 = 'totally disagree', 7 = 'totally agree'). The internal consistency of this six-item scale was $\alpha = .88$.

Psychosomatic complaints. The 23-item Inventory of Subjective Health scale (VOEG, Dirken, 1969) measures whether the participants suffered from a variety of psychosomatic complaints such as headaches, cardiovascular problems, and stomach aches (1 = 'Yes', 2 = 'No'). The internal consistency of this scale was $\alpha = .82$. Table 2 presents the means and standard deviations for the variables used in this study.

Results

Convergent validity

To examine the relations among specific, global, and self-rated reciprocity

indices in more detail, three structural equation models (Jöreskog & Sörbom, 1993) were fitted to the data (one for each exchange relationship). It was assumed that teachers base their overall (self rated) evaluation of their investments in and outcomes from a particular relationship on a global evaluation of their investments and outcomes, which in turn is based on an evaluation of specific investments and outcomes.

Results show that the fit of the three models corresponding with these notions was quite acceptable (for the exchange relationship with students, χ^2 with 32 df was 97.10, RMR = .07, NNFI = .95, CFI = .96; with colleagues, χ^2 with 32 df was 41.35, RMR = .05, NNFI = .99, CFI = .99; and with the school, χ^2 with 32 df was 48.49, RMR = .06, NNFI = .99, CFI = .99). Figure 2 presents the results of the analyses.

Figure 2 reveals that the results are quite similar across the exchange relationships. For each exchange relationship we found that the specific investments (outcomes) were significantly (and usually strongly) related to the items tapping the global investments (outcomes) from that relationship (standardized effects ranging from .36 to .85, median value .65, all p 's < .001). The global investments and outcomes were related to the self-rated assessment of reciprocity in the various exchange relationships (with the notable exception of the effect of the global investment in the exchange relationship with the school on the self-rated reciprocity index for that relationship, which was not significant). Note that the effects of the global investments on the self-rated reciprocity index were considerably weaker than the effects of the global outcomes (standardized effects were for the students -.64 vs .25, respectively; for the colleagues, -.52 vs .30; for the school, -.55 vs .14 (ns)).

The results of these analyses add credence to the notion that teachers base their self-rated level of reciprocity in a particular exchange relationship on the global assessment of their investments in and outcomes gained from that relationship; in turn, these global assessments seem to be based on the assessment of specific investments and outcomes. Taken together, these results provide good evidence for the convergent validity of all three types of reciprocity measures included in the current study. One word of caution is in order, however. As the results were based on cross-sectional data, it is not possible to interpret these results in causal terms. One alternative line of reasoning might be that the participants judged their investments in and outcomes gained from a particular exchange relationship on the basis of a general feeling of being under-benefited. This reasoning suggests that the effects presented in Figure 2 run the other way around, that is, that a top-down model is more appropriate than the bottom-up models presented in Figure 2. To examine this possibility, the models presented in Figure 2

■ TABLE 2

DESCRIPTIVE STATISTICS AND INTERCORRELATION OF VARIABLES (N=260)

RECIPROCITY INDICES	M	SD	1	2	3	4	5	6	7	8	9	RECIPROCITY INDICES
1 specific students	1.03	.19	—	.37***	.30***	—	—	—	—	—	—	1 specific students
2 global students	1.23	.31	—	—	.52***	—	—	—	—	—	—	2 global students
3 self-rated students	3.49	.74	—	—	—	—	—	—	—	—	—	3 self-rated students
4 specific colleagues	.91	.17	—	—	—	—	.37***	.12	—	—	—	4 specific colleagues
5 global colleagues	1.13	.36	—	—	—	—	—	.50***	—	—	—	5 global colleagues
6 self-rated colleagues	3.20	.50	—	—	—	—	—	—	—	—	—	6 self-rated colleagues
7 specific school	.93	.40	—	—	—	—	—	—	—	.32***	.35***	7 specific school
8 global school	1.80	1.03	—	—	—	—	—	—	—	.42***	—	8 global school
9 self-rated school	3.37	.70	—	—	—	—	—	—	—	—	—	9 self-rated school
STRESSORS												
10 Students	2.76	.80	.10	.36***	.43***	-.02	-.01	.05	-.07	.02	-.05	10 Students
11 Time	2.61	.83	.22***	.15*	.22***	.05	.11	.10	.05	.14*	.13*	11 Time
12 Teaching	2.37	.66	.14*	.24***	.28***	.05	.08	.08	.08	.02	.04	12 Teaching
13 Colleagues	2.25	.78	-.11	-.07	.03	.13*	.35***	.31***	.10	.01	.09	13 Colleagues
14 School	2.05	.91	.12	.20***	.14*	.13*	.10	.04	.49***	.25***	.36***	14 School
HEALTH OUTCOMES												
15 Emotional exhaustion	2.09	1.23	.15*	.30***	.27***	.07	.16*	.20**	.08	.10	.01	15 Emotional exhaustion
16 Depersonalization	1.56	.84	.04	.23***	.22***	.02	.02	.02	-.01	-.02	.02	16 Depersonalization
17 Personal accomplishment	3.77	.79	-.02	-.28***	-.29***	-.01	.01	-.05	.04	.03	-.01	17 Personal accomplishment
18 Commitment	4.81	1.12	-.06	-.24***	-.13*	-.13*	-.14*	-.07	-.36***	-.28***	-.25***	18 Commitment
19 Psychosomatic complaints	7.72	7.01	.11	.16**	.21***	.13*	.08	.09	.03	.01	-.05	19 Psychosomatic complaints

Note. All variables are standardized. A high ratio score refers to feelings of being underbenefited ($I > 0$). High scores on the work related stress scales refer to more feelings of stress. * = $p < .05$; ** = $p < .01$; *** = $p < .001$.

were tested with the arrows pointing the other way. In two of three cases, a significantly worse fit to the data was obtained (p 's $< .001$); furthermore, in all models several effects did not differ significantly from zero. Thus, the top-down models received little empirical support.

Construct validity

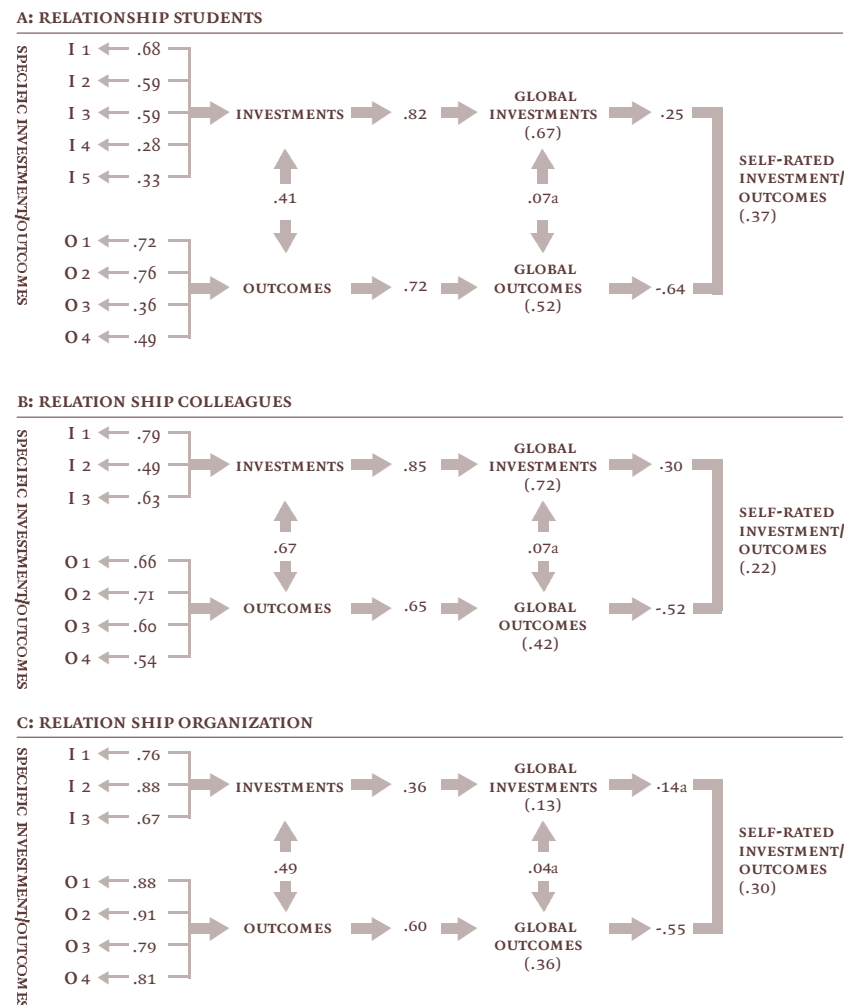
Reciprocity and stressors. The hypothesized relationships between lack of reciprocity in the relationships with students, colleagues, and the school to work related stressors were tested with hierarchical multiple regression analyses. Specific, global, and self-rated reciprocity indices were the independent variables and the work related stressors 'Students', 'Time', 'Teaching', 'Colleagues', and 'School' were used as dependent variables. Results presented in the previous section confirmed our assumption that,

initially, teachers evaluate their investments in and outcomes from a particular relationship bottom-up through three sequential 'steps', that is, from a specific evaluation, through a more global assessment to an overall evaluation. In the regression analyses we maintained this order by entering the self-rated, global, and specific reciprocity indices in the third, fourth and fifth step, respectively.

Studies on reciprocity among teachers recommend to control for demographic variables such as age and gender (*e.g.*, Peeters *et al.*, 1998; Van Horn *et al.*, 1999). Results in the current study show that age, gender, and the number of hours employed, accounted for a significant amount of variance in lack of reciprocity at each exchange relationship (Table 3).

● FIGURE 2

STANDARDIZED EFFECTS FOR THE RELATIONS AMONG SPECIFIC, GLOBAL AND SELF-RATED INVESTMENTS AND OUTCOMES FOR THE RELATIONSHIP WITH THE STUDENTS, COLLEAGUES AND ORGANIZATION (ITEM NUMBERS CORRESPOND WITH THOSE GIVEN IN PANEL A/B/C IN FIGURE 1, RESPECTIVELY), ALL EFFECTS SIGNIFICANT AT $p < .001$ EXCEPT * $p > .05$, FIT INDEXES ARE GIVEN IN THE TEXT



Hypothesis 2a predicted that lack of reciprocity in the exchange relationship with students is particularly relevant in predicting work related stress due to tensions in the interaction with students (as measured by the stressors 'Students', 'Time', and 'Teaching'). Consistent with this notion, the self-rated reciprocity index accounted for 19%, 11%, and 7% of the variance in the work related stressors 'Students', 'Time', and 'Teaching', respectively. Stated differently, teachers who feel under benefited in their exchange relationship with students experience more stress from interactions with students, time pressure, and aspects directly related to teaching (e.g., poor equipment). Note that the global and specific indices do not account for any variance in these three stressors, with the notable exception of the specific reciprocity index that accounted for an additional 4% of the variance in the stressor 'Students'.

Hypothesis 2b stated that lack of reciprocity in the exchange relationship with colleagues is significantly related to the work related stressor 'colleagues'. In agreement with this hypothesis, under benefited teachers significantly experience more stress due to tensions in the relationship with colleagues. This effect accounts for 14% of variance in the work related stressor 'Colleagues'. As expected, the other indices do not contribute.

Finally, Hypothesis 2c suggested that lack of reciprocity in the exchange relationship with the school is particularly relevant in the prediction of work related stress due to tensions in the interaction with the school. This expectation was supported: the self-rated reciprocity index explained 15% of the variance in the work related stressor 'School', whereas the other indices were non-significant.

Reciprocity and teacher well-being. Following the same procedure as in the previous regression analyses age, gender, teaching experience, and number of hours employed, were entered prior to the reciprocity indices. In particular, age and gender predicted a significant proportion of the variance in well-being (Table 4).

To test hypotheses 2d to 2f, hierarchical multiple regression analyses were conducted with the specific, global, and self-rated reciprocity indices as the independent variables and various measures of teacher well-being (the three subscales of the MBI: emotional exhaustion, depersonalization, and personal accomplishment; organizational commitment; and psychosomatic complaints, respectively) as dependent variables. The self-rated, global, and specific reciprocity indices were entered in the third, fourth and fifth step (Table 3).

■ TABLE 3

SPECIFIC, GLOBAL, AND SELF-RATED RECIPROCITY INDICES AND WORK-RELATED STRESSORS (N = 224)

PREDICTORS VARIABLES ENTERED	STUDENTS				TIME				TEACHING				COLLEAGUES				SCHOOL			
	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2
Age	.26	.001	—	—	—	—	—	—	.23	.001	—	—	.17	.012	—	—	.11	.115	—	—
Gender	-.05	.445	—	—	—	—	—	—	-.07	.327	—	—	-.06	.421	—	—	-.15	.027	—	—
Total	—	—	.07	.07***	—	—	—	—	—	—	.05	.05***	—	—	.03	.03**	—	—	.02	.02*
Hours employed	.08	.202	—	—	.02	.815	—	—	.11	.094	—	—	.06	.363	—	—	.23	.001	—	—
Teaching experience	-.17	.133	—	—	.05	.443	—	—	.03	.769	—	—	.02	.842	—	—	.10	.165	—	—
Total	—	—	.08	.01	—	—	.01	.01	—	—	.06	.01	—	—	.03	.00	—	—	.07	.05**
Self-rated students	.44	.001	—	—	.26	.001	—	—	.26	.001	—	—	-.03	.621	—	—	—	.07	.244	—
Self-rated colleagues	.01	.978	—	—	.06	.393	—	—	.01	.883	—	—	.36	.000	—	—	-.06	.299	—	—
Self-rated school	-.10	.109	—	—	.15	.022	—	—	.03	.458	—	—	.39	.001	—	—	—	—	—	—
Total	—	—	.27	.19**	—	—	.11	.11***	—	—	.13	.07***	—	—	.17	.14***	—	—	.22	.15***
Global students	.10	.086	—	—	.07	.308	—	—	.14	.037	—	—	.09	.148	—	—	.05	.438	—	—
Global colleagues	-.02	.776	—	—	-.05	.426	—	—	-.08	.231	—	—	-.14	.039	—	—	-.11	.079	—	—
Global school	.03	.633	—	—	-.04	.513	—	—	-.07	.295	—	—	.00	.971	—	—	.10	.111	—	—
Total	—	—	.28	.01	—	—	.12	.01	—	—	.16	.03	—	—	.20	.03	—	—	.24	.02
Specific students	-.20	.001	—	—	-.03	.676	—	—	-.08	.229	—	—	.01	.825	—	—	-.01	.844	—	—
Specific colleagues	-.02	.683	—	—	-.11	.110	—	—	-.09	.152	—	—	-.10	.114	—	—	.04	.468	—	—
Specific school	.01	.826	—	—	-.07	.305	—	—	-.03	.648	—	—	-.01	.872	—	—	.03	.591	—	—
Total	—	—	.32	.04**	—	—	.13	.01	—	—	.17	.01	—	—	.21	.01	—	—	.25	.01

* = $p < .05$; ** = $p < .01$; *** = $p < .001$.

Hypothesis 2d stated that burnout (i.e., emotional exhaustion, depersonalization and a sense of reduced personal accomplishment) is particularly predicted by lack of reciprocity in social exchange relationships that are characterized by a high frequency and intensity of social interactions with others. That is, it was expected that, in decreasing order, lack of reciprocity is related to burnout starting with the exchange relationship with students, followed by colleagues and the school, respectively. Overall, results from regression analyses support this hypothesis. That is, lack of reciprocity (self-rated index) at students level significantly predicted the variance in emotional exhaustion (7%), depersonalization (3%), and reduced personal accomplishment (8%). Another 6% of the variance in personal accomplishment is explained by the global reciprocity index. In the relationship with colleagues lack of reciprocity is less significant in predicting burnout, typically resulting from the fact that the self-rated

reciprocity index accounted for 7% of the variance in only emotional exhaustion. At the organizational level, no significant results were found for either three burnout symptoms, indicating that lack of reciprocity in the relationship with the school does not manifest in higher levels of burnout.

However, as expected, lack of reciprocity in the exchange relationship with the school is significantly related to a lowered organizational commitment (Hypothesis 2e). More specifically, the self-rated reciprocity index accounted for 8% of the variance in organizational commitment, implying that teachers who feel under benefited by the school feel less committed to the school than to other teachers. Note that an additional 5% of the variance in organizational commitment is explained by the global reciprocity index for students: teachers who feel under benefited by their students feel less committed to their school.

■ **TABLE 4**

SPECIFIC, GLOBAL, AND SELF-RATED RECIPROCITY INDICES AND WELL-BEING
(N = 224)

PREDICTORS VARIABLES ENTERED	EMOTIONAL EXHAUSTION				DEPERSONALIZATION				PERSONAL ACCOMPLISHMENT				ORGANIZATIONAL COMMITMENT				PSYCHOSOMATIC COMPLAINTS			
	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2
Age	.18	.007	—	—	.20	.004	—	—	-.17	.009	—	—	.02	.818	—	—	.34	.001	—	—
Gender	-.16	.018	—	—	-.15	.027	—	—	.02	.726	—	—	.15	.025	—	—	-.07	.265	—	—
Total	—	—	.08	.08**	—	—	.08	.08**	—	—	.03	.03**	—	—	.02	.02*	—	—	.11	.11***
Hours employed	.01	.990	—	—	.10	.171	—	—	-.09	.169	—	—	-.10	.162	—	—	-.07	.261	—	—
Teaching experience	-.02	.875	—	—	.02	.839	—	—	.14	.228	—	—	.02	.810	—	—	.09	.409	—	—
Total	—	—	.08	.00	—	—	.08	.01	—	—	.04	.01	—	—	.03	.01	—	—	.12	.01
Self-rated students	.21	.001	—	—	.16	.013	—	—	-.27	.001	—	—	-.07	.292	—	—	.15	.020	—	—
Self-rated colleagues	.14	.032	—	—	.06	.408	—	—	-.01	.823	—	—	.07	.308	—	—	.05	.398	—	—
Self-rated school	.03	.608	—	—	-.04	.532	—	—	.04	.563	—	—	-.28	.001	—	—	-.02	.748	—	—
Total	—	—	.15	.07***	—	—	.11	.03	—	—	.12	.08***	—	—	.11	.08***	—	—	.15	.03
Global students	.07	.291	—	—	.12	.073	—	—	-.22	.001	—	—	-.20	.003	—	—	.03	.645	—	—
Global colleagues	.03	.463	—	—	.10	.130	—	—	-.07	.288	—	—	-.05	.424	—	—	.01	.948	—	—
Global school	.05	.644	—	—	.02	.775	—	—	-.09	.177	—	—	-.10	.144	—	—	.01	.854	—	—
Total	—	—	.16	.01	—	—	.14	.03	—	—	.18	.06**	—	—	.16	.05	—	—	.15	.01
Specific students	-.01	.918	—	—	-.07	.292	—	—	.09	.143	—	—	.02	.733	—	—	.03	.639	—	—
Specific colleagues	-.07	.292	—	—	-.00	.930	—	—	-.08	.186	—	—	.04	.516	—	—	-.07	.298	—	—
Specific school	.02	.791	—	—	-.03	.601	—	—	.14	.026	—	—	-.05	.430	—	—	-.01	.848	—	—
Total	—	—	.16	.01	—	—	.14	.00	—	—	.21	.03*	—	—	.17	.01	—	—	.15	.01

* = $p < .05$; ** = $p < .01$; *** = $p < .001$.

Hypothesis 2f, concerning the effects of lack of reciprocity at each exchange level on psychosomatic complaints, was not supported. Only at the students level, the self rated reciprocity index explains 3% in the number of psychosomatic complaints, indicating that under benefited teachers experience more health complaints.

Conclusions

Convergent validity

The results of the covariance structure analyses suggest that teachers base their self-rated evaluation of the reciprocity in a particular exchange relationship on the global assessment of reciprocity. In turn, this global

assessment is based on teachers' assessment of their specific investments in and outcomes gained from that relationship. In short, the self-rated reciprocity index seems to be the most adequate and comprehensive operationalization of reciprocity.

Construct validity

In general, it can be concluded that lack of reciprocity in a particular relationship is associated with specific work related stressors. In particular, the self-rated reciprocity index seems to be most strongly related to specific work stressors. Although somewhat less prominent, it also appears that in each exchange relationship, lack of reciprocity can be associated with specific outcomes of well-being.

OVERALL DISCUSSION

As noted in the introduction, results from previous studies are inconclusive as far as the measurement of equity is concerned. Whereas in some studies it is argued that the perception of equity depends on the subjective evaluation of relevant specific investments in and outcomes from a particular relationship (cf. Lujanski & Mikula, 1983; Van Horn *et al.*, 1999), in other studies similar results were found irrespective of the use of various equity measures (*e.g.*, Prins *et al.*, 1993). Relevant to this issue, two studies were presented. In Study 1 an inventory was made of 542 spontaneously mentioned investments in and outcomes from teachers' exchange relationships with students, colleagues, and the school. Moreover, multi-item scales were constructed to measure reciprocity at a detailed level. The main object in Study 2 was to examine the convergent validity and the construct validity of the specific, global, and self-rated reciprocity indices.

One important limitation of the two studies presented in this research is the fact that they both employed a cross-sectional design. That is, strictly speaking it is impossible to speak of 'causal' effects, as the temporal order of the variables in this research is unknown. This problem is most prominent in Study 2, in which the relationships among three different reciprocity indices were examined. This study revealed that the data were consistent with the interpretation that teachers evaluate their investments and outcomes concerning a particular relationship in three sequential steps, from specific through a more global assessment resulting in an overall evaluation (bottom-up). The alternative interpretation that a top-down process would account for the data received considerable less support. Thus, it seems that people base their global assessments of investments and outcomes on an assessment of specific investments and outcomes, rather than the other way around.

Salience of teachers' exchange relationships

One key assumption in Study 1 was that the number of investments in and outcomes gained from a particular exchange relationship would differ as a function of the level of psychological contact in this relationship. Based on the extent to which interactions in a particular relationship are more frequent and intense, we expected the relationship with students to be most salient in this respect and the relationship with the school as the least salient, with the relationship with the colleagues occupying an intermediary position (Hypothesis 1). Consistent with this reasoning, the reported number of task- and relationship-oriented investments and outcomes varied as a

function of type of relationship, starting with the highest number at students level, followed by the relationship with colleagues and finally with the school. The high level of psychological contact between teachers and students is often explained by the fact that, nowadays, teaching is more than just transferring knowledge. It also implies intervention in students' lives, providing instruction and shaping students' individual growth (Rosenholtz & Simpson, 1990). As a consequence, interactions with students are more personal than interactions with colleagues and the school. Further, teaching implies a rather solitary interaction between the individual teacher and his or her students. Combined with the fact that most teachers are unwilling to discuss their professional performance, interactions with colleagues are rather limited (Commissie Toekomst Leraarschap, 1993). With the school, interactions are even less frequent and intense than with colleagues. Together, these notions suggest that the relationship with students is more important for teachers' well-being than other exchange relationships.

The same pattern of saliency regarding the three exchange relationships was found for the investments in and outcomes from task-oriented and relationship-oriented aspects (Hypothesis 2). That is, teachers not only reported a higher number of investments and outcomes in their exchange relationship with students, they also invested in and gained from task-oriented aspects equally as they did concerning the relationship-oriented aspects. Apparently, teachers consider their exchange relationship with students highly relevant not only at a professional level but at a social level as well. This was somewhat different as far as the relationship with colleagues is concerned. As expected, teachers invested more in and gained more from relationship oriented aspects than from task-oriented aspects. This seems consistent with the notion that interactions with colleagues at a professional level are limited. Although the number of reported investments and outcomes in the relationship with the school were found to be the least compared to the other relationships, we had expected the task-oriented aspects to be more salient than the relationship-oriented aspects. Results, however, showed no significant differences at this point.

Validation of reciprocity indices

The purpose of Study 2 was to examine the validity of the specific, global and self-rated reciprocity indices. Confirmatory factor analyses supported the convergent validity of all three types of reciprocity measures included in this study. The current set of results suggested that teachers base their self-rated evaluation of the reciprocity in a particular exchange relationship on the global assessment of their investments in and outcomes from that relationship. In turn, these global assessments are based on the participants'

assessment of their specific investments in and outcomes gained from that relationship. In conclusion, it seems fair to say that – in terms of *convergent validity* – reciprocity is most adequately and comprehensively represented in the self-rated reciprocity index.

As regards the *construct validity* of the various reciprocity indices, lack of reciprocity experienced at one particular exchange level (i.e., students, colleagues, or school) does not contribute to work-related stress at any other level. Moreover, lack of reciprocity in each relationship can be associated with *specific* consequences in terms of well-being. For work-related stressors, it was found that teachers who feel under benefited by their students, experience more stress in their interactions with students. Moreover, they also experience more stress due to time pressures and other teaching related aspects. In addition, under benefited teachers in the exchange relationship with colleagues experience more stress due to tensions in that relationship. Similarly, teachers who feel under benefited in their relationship with the school experience relatively much stress due to the interaction with the school.

The frequency and intensity of interactions with students, colleagues, and the school were expected to lead to burnout. The rationale for this assumption lies in the notion that burnout is a long-term stress reaction, which is specifically linked to the emotional strain of working frequently and intensively with other people (Maslach, 1982). Therefore, we expected that (in decreasing order) lack of reciprocity is related to burnout at students', colleagues', and school level. The results were consistent with this expectation. That is, under-benefited teachers emotionally felt more exhausted, depersonalized, and incompetent as far as the exchange relationship with students is concerned. It is known from stress research that tensions in the interactions with students leave a mark on the teachers' well-being in the long run, resulting in energy depletion (Weisfelt, 1993) and negative attitudes toward students and teaching in general (Byrne, 1991). With colleagues, burnout complaints were restricted to higher emotional exhaustion levels exclusively. At the organizational level, no significant results were found. These results also underline our findings in Study 1 that the exchange relationship with students seemed to be the most salient for teachers, followed by the relationship with colleagues and finally the school.

These results suggest that in the teaching profession the exchange relationship with colleagues, although not as frequent and intense as the exchange relationship with students, is relevant in terms of burnout and that in the exchange relationship with the school, lack of reciprocity does not seem to be relevant in burnout. However, we found that lack of reciprocity at organizational level was significantly related to a lowered organizational

commitment. This result replicates findings obtained in other studies (Schaufeli et al., 1996; Taris et al., *in press*).

All in all, the current research suggests that the various equity measures that have been employed to date - be it specific, global, or self-rated indices - are all valid in terms of their convergent and construct validity. This is not to say that the choice for either of these is arbitrary, and that it does not matter which of these indexes is used. Common sense suggests that it is best to use the self-rated reciprocity index, if only because this measure is easy to administer and places little demands on the participants' time. More importantly, if inequity is used to explain individual variation in particular outcome variables, it would seem that the self-rated index should be used, because this index is conceptually closest to the phenomenon to explain. That is, this way of measuring inequity will usually result in the strongest effects on the dependent variables. As this way of measuring equity does not result in a substantial loss of validity, researchers are well advised to use self-rated indices instead of very specific indices.

REFERENCES

- Adams, J.S. (1963).
Toward an understanding of inequity.
Journal of Abnormal & Social Psychology, 5, 422-436.
- Adams, J.S. (1965).
Inequity in social exchange.
Advances in Experimental Social psychology, 2, 267-299.
- Anderson, N.H. (1976).
Equity judgment as information integration.
Journal of Personality & Social Psychology, 33, 291-299.
- Blase, J.J. (1986).
A Qualitative Analysis of Sources of Teacher Stress:
Consequences for performance.
American Educational Research Journal, 23, 13-40.
- Boyle, G.J., Borg, M.G., Falzon, J.M., & Baglioni, A.J. (1995).
A structural model of the dimensions of teacher stress.
British Journal of Educational Psychology, 65, 49-67.
- Brown, M., & Ralph, S. (1992).
Towards the identification of stress in teachers.
Research in Education, 48, 103-110.
- Buunk, B.P. & Van Yperen, N.W. (1991).
Referential comparisons, relational comparisons,
and exchange orientation: Their relation to marital satisfaction.
Personality & Social Psychology Bulletin, 17, 709-717.
- Byrne, B. M. (1991).
Burnout: Investigating the impact of background variables for
elementary, intermediate, secondary, and university educators.
Teaching & Teacher Education, 7, 197-209.
- Commissie Toekomst Leraarschap (CTL) (1993).
Een beroep met perspectief: De toekomst van het leraarschap
[A profession with prospect: The future of teaching professions].
Leiden, The Netherlands: Distributiecentrum DOP.
- Crowder, R.G. (1985).
Basic theoretical concepts in human learning and cognition.
In L.G. Nilsson & T. Archer (Eds), *Perspectives on learning and memory* (pp. 19-37).
Hillsdale, NJ: Lawrence Erlbaum.
- Dirken, J.M. (1969).
Arbeid en Stress [Work and Stress].
Groningen: Wolters.
- Enzmann, D., Schaufeli, W.B. & Girault, N. (1995).
The validity of the Maslach Burnout Inventory in three national samples.
In: L. Bennett, D. Miller & M. Ross (eds.), *Health workers and AIDS: Research,
interventions and current issues* (pp. 131-150). Chur (Switzerland): Harwood.

- Geurts, S.A., Schaufeli, W.B., & Buunk, B.P. (1993).
Social comparison, inequity, and absenteeism among busdrivers.
European Work & Organizational Psychologist, 3, 191-203.
- Hackman, J.R., & Oldham, G.R. (1976).
Motivation through the design of work: Test of a theory.
Organizational Behavior & Human Performance, 16, 250-279.
- Hart, N.I. (1987).
Student Teachers' Anxieties: Four measured factors
and their relationship to pupil disruption in class.
Educational Research, 29 (1), 12-18.
- Hatfield, E., Traupman, J., Sprecher, S., & Hay, J. (1985).
Equity and intimate relations: Recent research.
In: W. Ickes (Ed.). *Compatible and incompatible relationships* (pp. 309-321).
Oxford: Pergamon Press.
- Hodge, G.M., Jupp, J.J., & Taylor, A.J. (1994).
Workstress, distress and burnout in music and mathematics teachers.
British Journal of Educational Psychology, 64, 65-76.
- Horn, J.E. van, & Schaufeli, W.B. (1998).
Maslach Burnout Inventory: The Dutch Educators Survey (MBI-NL-ES):
Manual (Unpublished manuscript).
Utrecht University.
- Horn, J.E. van, Schaufeli, W.B., & Enzmann, D. (1999).
Teacher burnout and lack of reciprocity.
Journal of Applied Social Psychology, 29, 91-108.
- Iverson, R.D., & Roy, P. (1994).
A causal model of behavioral commitment:
Evidence from a study of Australian blue-collar employees.
Journal of Management, 20, 15-41.
- Jöreskog, K. & Sörbom, D. (1993).
LISREL 8 (computer manual).
Chicago: Scientific Software International.
- Kamphuis, J., & Van Poppel, J. (1994).
Het schoolgezondheidsonderzoek: Handleiding voor de bedrijfs-
gezondheidszorg (Manual for the School Health Questionnaire).
Heerlen (The Netherlands): CO/BGZ.
- Kyriacou, C., & Sutcliffe, J. (1978).
Teacher stress: Prevalence, sources, and symptoms.
British Journal of Educational Psychology, 48, 159-167.
- La Gaipa, J.J. (1977).
Interpersonal attraction and social exchange.
In S. Duck (ed.), *Theory and practice in interpersonal attraction* (pp. 29-164).
London: Academic Press.
- Levinson, H. (1965).
Reciprocation: the relationship between man and organization.
Administrative Science Quarterly, 9, 370-390.

- Lujansky, H. & Mikula, G. (1983).
Can equity theory explain the quality and the stability
of romantic relationships?
British Journal of Social Psychology, 22, 101-112.
- Maslach, C. & Jackson, S.E. (1986).
Maslach Burnout Inventory.
Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C. (1982).
Burnout: The cost of caring.
New Jersey: Englewood Cliffs.
- Mowday, R.T. Steers, R.M., & Porter, L.W. (1979).
The measurement of organizational commitment.
Journal of Vocational Behavior, 14, 224-247.
- Nyklicek, I., Vingerhoets, A.J.J.M., Van Heck, G. L., Kamphuis,
P.L., Van Poppel, J.W.M.J., & Van Limpt, M.C.A.M. (1997).
Blood pressure, self-reported symptoms and job-related
problems in schoolteachers.
Journal of Psychosomatic Research, 42, 287-296.
- Peeters, M.C.W., Geurts, A.E., & Van Horn, J.E. (1998).
Burnout bij leraren: Is sociale uitwisseling een vruchtbaar perspectief?
[Burnout among teachers: s social exchange a fruitful perspective].
Gedrag & Gezondheid, 26, 39-45.
- Perry, L.S. (1993).
Effects of inequity on job satisfaction and self-evaluation
in a national sample of African-American workers.
Journal of Social Psychology, 133, 565-573.
- Prins, K.S., Buunk, B.P., & Van Yperen, N.W. (1993).
Equity, normative disapproval and extramarital relationships.
Journal of Social & Personal Relationships, 10, 39-53.
- Pritchard, R.D. (1969).
Equity Theory: A review and critique.
Organizational Behavior & Human performance, 4, 176-211.
- Rosenholtz, S.J. & Simpson, C. (1990).
Workplace Conditions and the Rise and Fall of Teachers' Commitment.
Sociology of Education, 63, 241-257.
- Schaufeli, W.B., Daamen, J.R.H., & Mierlo, J.A.J. van (1993).
Burnout among Dutch Teachers: An MBI validity study.
Educational & Psychological Measurement, 54 (3), 803-812.
- Schaufeli, W.B., Van Dierendonck, D., & Van Gorp, K. (1996).
Burnout and reciprocity: Towards a dual-level social exchange model.
Work & Stress, 10, 224-237.
- Smith, M., & Bourke, S. (1992).
Teacher stress: examining a model based on context,
workload, and satisfaction.
Teaching & Teacher Education, 8, 31-46.

- Taris, T.W., Kalimo, R., & Schaufeli, W.B. (2000).
Inequity at work: Measurement and effects on worker health.
Manuscript currently under editorial consideration.
- Taris, T.W., Peeters, M.C.W., Le Blanc, P.M., Schaufeli,
W.B., & Schreurs, P.J.G. (in press).
Reciprocity, stress and burnout among teachers.
Journal of Occupational Health Psychology.
- Tilburg, T. van, Van Sonderen, E. & Ormel, J. (1991).
The measurement of reciprocity in ego-centered networks of
personal relationships: A comparison of various indices.
Social Psychology Quarterly, 54, 54-66.
- Traupmann, J., Peterson, R., Utne, M., & Hatfield, E. (1981).
Measuring equity in intimate relations.
Applied Psychological Measurement, 4, 467-480.
- Travers, C.J., & Cooper, C.L. (1993).
Mental health, job satisfaction and occupational
stress among UK teachers.
Work & Stress, 7, 203-219.
- VanDierendonck, D., Schaufeli, W.B., & Buunk, B.P. (1996).
Inequity among human service professionals:
measurement and relation to burnout.
Basic & Applied Social Psychology, 18, 429-451.
- VanYperen, N.W., Hagedoorn, M., & Geurts, S.A.E. (1996).
Intent to leave and absenteeism as reactions to perceived inequity:
the role of psychological and social constraints.
Journal of Occupational & Organizational Psychology, 69, 367-372.
- Vianen, A.E.M. van, & Ten Bruggencate, M. (1995).
Persoon-klimaat-congruentie van nieuwkomers in de organisatie
[Person-Environment fit of novelties in the organization]
Gedrag en Organisatie, 8, 31-49.
- Walster, E., Walster, G.W., & Berscheid, E. (1978).
Equity: Theory and research.
Boston, MA: Allyn & Bacon.
- Walster, G.W. (1975).
The Walster et al. (1973) formula: A correction.
Representative Research in Social Psychology, 6, 65-67.
- Warr, P.B. (1987).
Work, unemployment, and mental health.
Oxford: Oxford University Press.
- Weisfelt, P. (1993).
Ruimte voor Persoonlijke Ontwikkeling Van Docenten:
Suggesties voor uitdagende reizen door onderwijsland
[Teachers' Personal Development].
Tijdschrift voor Leerlingbegeleiding, 16, 9-11.

- Horn, J.E. van, Schaufeli, W.B., & Enzmann, D. (1999). Teacher burnout and lack of reciprocity. *Journal of Applied Social Psychology*, 29, 91-108.

TEACHER BURNOUT AND LACK OF RECIPROCITY

teaching experience and number of hours employed) are included. Findings show that when teachers invest more than they get back from their school, they report higher levels of emotional exhaustion. As expected, at interpersonal level, low outcomes from students are related to higher burnout levels, whereas at organizational level, low investments are related to higher burnout levels. These findings are discussed in terms of the extent to which the psycho-logical contact is more intimate or impersonal in both types of relationships.

INTRODUCTION

Although little is known about the exact prevalence of teacher burnout, it is assumed that in the etiology and development of mental health complaints, burnout plays an important role. For instance, *Greenglass, Burke, and Ondrack* (1990) state that teacher burnout is positively related to self-reported indices of personal distress including depression, anxiety, and somatisation. Moreover, *Belcastro, Gold, and Grant* (1982) found in their study that burned-out correctional teachers differed in their pattern of somatic complaints and illnesses compared to those classified as not burned-out. Almost all investigated burned-out teachers had developed gastro-enteritis, migraine or depression after entering their profession. In the Netherlands, 53 percent of the work-incapacitated teachers left their profession because they suffered from mental-health problems (*Algemeen burgerlijk pensioenfonds*, 1995).

Burnout is a metaphor that describes a particular syndrome which is assumed to be linked to the emotional strain of working frequently and intensively with other people. In particular human-service professionals (e.g., nurses, physicians, social workers, and teachers) are vulnerable to burnout (*Maslach*, 1982, 1993). The most widely accepted conceptualization of burnout originates from the work of *Maslach and Jackson* (1986). They consider burnout an ongoing affective stress reaction that gradually develops over a period of time, and is characterized by three dimensions: emotional exhaustion, depersonalization and reduced personal accomplishment. Emotional exhaustion refers to a depletion of the teachers' energetic resources, thought to be caused by intense daily involvement with the personal and social needs of students. It is assumed that in order to cope with emotional exhaustion, teachers develop negative and indifferent attitudes, in particular, toward students (depersonalization). Finally, burned-out teachers are likely to perceive themselves as less effective in their work, resulting in feelings of inadequate personal achievement (reduced personal accomplishment).

SUMMARY

Results are presented of a study on burnout among 249 Dutch elementary and secondary school teachers. The current study considers burnout in terms of the exchange of investments and outcomes at interpersonal (teacher-student) and organizational (teacher-school) level. In addition, demographic (age and gender) and work related factors (school type,

It has been shown in studies among teachers that burnout is significantly related to particular demographic variables (e.g., gender and age; Friedman, 1991; Greenglass et al., 1990), as well as to work-related factors (e.g., teaching experience, school type, and the number of hours employed; Friedman, 1991). Consequently, these demographic variables and work-related factors are taken into account in the present study.

Students' misbehavior (e.g., aggression and demotivation; Hart, 1987; Weisfelt, 1993) and poor working conditions (e.g., role conflict, work overload; Schaufeli & Bergers, 1992) are regarded as important stressors in teaching professions. However, in most studies, these stressors are investigated as determinants without empirically elaborating on the underlying processes. We assume that social-exchange processes play a major role in the development of burnout because interactions with other people are thought to be the central concepts in burnout (Maslach, 1982). The relevance of social exchange processes in burnout has been recently demonstrated Buunk and Schaufeli (1993) in other human service professions. According to the authors, equity theory provides a conceptual framework that advances our understanding of the role of social-exchange interactions in the development of burnout in human-service professions. Empirical findings have indeed demonstrated that discrepancies between one's own investments and outcomes (lack of reciprocity) in social-exchange relationships at both interpersonal (e.g., Schaufeli, Van den Eynden, & Brouwers, 1994; Van Dierendonck, Schaufeli, & Sixma, 1994) and organizational level (e.g., Schaufeli, Van Dierendonck, & Van Gorp, 1996) are related to higher burnout levels. Therefore, the present study concentrates on the relationship between burnout and social-exchange processes at two levels: interpersonal (teacher-student) and organizational (teacher-school).

Social exchange, reciprocity, and equity

Among social-exchange theories, Adams' equity theory (1965) is probably the most influential. In this theory, social relationships are viewed in terms of exchange processes between investments (I) and outcomes (O). People pursue reciprocity in exchange relationships: The ratio of investments to outcomes for the person in question should be in proportion to the investments and benefits of the other (real or hypothetical) party. When the ratio between investments and outcomes does not match the ratio for the other party, lack of reciprocity (inequity) is experienced. People can reduce or eliminate inequitable feelings, for instance, by altering their perceptions of investments or outcomes or by actually changing their investments or outcomes (Huseman, Hatfield, & Miles, 1985, 1987; Walster, Walster, & Berscheid, 1978).

Teachers need to feel valued in their work by receiving positive feedback from their students (Blase, 1986; Weisfelt, 1993) and from the organization. At interpersonal level, a discrepancy between teachers' efforts (i.e., investments) and their valued outcomes (e.g., students' progress, enthusiasm, and gratitude) may result in energy depletion and disillusion. This is illustrated by a science teacher who states,

"It means that no matter how good you are, how much you put into this job, often you're just not going to reach the kids. I feel you put a lot more into your work than you get back. This realization is very depressing." (Blase, 1982, p. 105)

Evidently, social-exchange processes between teachers and their students seem to be relevant for burnout. In addition, it has been argued that burnout should also be considered within the organizational context (Cox, Kuk, & Leiter, 1993; Golembiewski & Munzenrider, 1988). Drawing on the notion of the employees' psychological contract with the organization (Rousseau & Parkes, 1993), it can be argued that social-exchange processes similar to those observed in interpersonal relationships govern the relationship of the employee with his or her organization. The employee's notion of the psychological contract is shaped by expectations about outcomes from the organization (e.g., fair salary and promotion prospects, as well as less tangible matters such as esteem and support from supervisors). Thus, it can be assumed that teachers expect something in return for their investments in the relationship with the organization, thus the school.

Pritchard (1969) criticized equity theory for neglecting (a) the role of internal standards as a basis for comparison, and (b) differences in levels of psychological contact in various relationships. Concerning the former, Pritchard states that in the evaluation process, people use their own internal standards. From this perspective, a lack of reciprocity proceeds from a discrepancy between one's internal standards on the one hand and one's own investments and outcomes in an exchange relationship on the other hand. Following Pritchard's line of reasoning, we assume that in social-exchange relationships teachers use their own internal standards to weigh investments against perceived outcomes rather than to compare their input-output ratio to that of others. Internal standards are especially salient in teachers for two reasons. First, teaching implies a rather solitary interaction between the individual teacher and his or her students. Therefore, in evaluating their investments and outcomes, teachers are more likely to use their own internal standards than the investment and outcome ratios of colleagues. Second, most teachers are unwilling to discuss their professional performance with either their colleagues or the school management, because in doing so they might be regarded as incompetent (Commissie Toekomst Leraarschap, 1993). In other words,

most teachers are likely to have limited information about their colleagues' performance in the classroom.

We furthermore assume that investments and outcomes can be related to burnout separately. More specifically, in the relationship with students, outcomes rather than investments are considered to be related to burnout. The rationale for this assumption is that teachers may consider the time and energy they put into their work as investments intrinsic to their job. Accordingly, internal standards are used to evaluate what is gained from students rather than what has been invested. As for the relationship with the organization, we assume the reverse to be true; that is, investments are more important than outcomes. It is known that, at least in The Netherlands, teachers are dissatisfied with their salary and promotion prospects and jobs outside their profession are rather limited (Lokhorst, Habets, Hoogendijk, & Kleipool, 1994; Van Poppel & Kamphuis, 1994). These outcomes are rather difficult to change because they either are inherent to the structure of teaching system or embedded in the formal contract with the school. Given the fact that some outcomes from the school are difficult, if not impossible, to alter, investments become more salient to counteract feelings of lack of reciprocity.

In the second tenet of his criticism to equity theory, Pritchard (1969) states that at the two extremes of a continuum, social-exchange relationships can be either intimate or impersonal. People have greater sensitivity to discrepancies between investments and outcomes when the exchange relationship is more personal. Thus, lack of reciprocity is more likely to occur in more personal relationships. Applying this reasoning to teachers, we assume that their relationship with students can be characterized as more personal than with the school. Therefore, lack of reciprocity is more easily generated when the exchange relationship with students is concerned.

Hypotheses

In this study, two hypotheses are tested with regard to social exchange processes with students:

Hypothesis 1. Teachers who experience an imbalance in the relationship with students (i.e., investments outweigh outcomes) are more likely to have burnout symptoms than teachers who experience reciprocity.

Hypothesis 2. Burnout is mainly related to outcomes from students, rather than to investments teachers put into their relationship with students.

With regard to the exchange relationship with the school, two other hypotheses are tested:

Hypothesis 3. Teachers who feel that outcomes from the organization are less than their investments (lack of reciprocity) show higher burnout levels. However, lack of reciprocity at the organizational level is expected to have less impact on burnout than lack of reciprocity at the interpersonal level because the former relationship is less personal.

Hypothesis 4. Investments in the relationship with the school will show a stronger relation with burnout than outcomes from the school.

Method

Sample

The current study used a composite sample of teachers ($N = 257$; response rate 73%) from six elementary ($n = 97$) and four secondary ($n = 160$) schools located in Eindhoven, The Netherlands. The total sample consisted of 155 (60%) men and 102 (40%) women. The average age was 45 years, with a range from 23 to 59 years ($SD = 6.98$). The mean work experience was 19 years ($SD = 7.71$), and the mean number of hours employed per week was 33 ($SD = 9.28$).

Procedure

In 1994 and 1995, teachers were asked to voluntarily participate in a school health program (SHP) that was conducted by a local Occupational Health Service in Eindhoven. The object of the SHP was to prevent burnout and to reduce absenteeism by reducing workload through reallocation of tasks and duties among teachers. Each participant was interviewed about his or her experienced workload, as well as about their tasks and duties. In addition, a questionnaire was completed concerning working conditions (including investments and outcomes items) and well-being (including burnout) of personnel. The questionnaires were completed after the interview in the presence of the interviewer. In the present study, data from the questionnaire are used.

Instruments

Burnout. The Dutch version of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986) for educators (Schaufeli & Van Horn, 1995) was used to measure burnout. On the grounds of poor factorial validity, Schaufeli, Daamen, and Van Mierlo (1993) eliminated two items from the MBI: Item 16, "Working with people puts too much strain on me" (emotional exhaustion), and Item 12, "I feel very energetic" (personal accomplishment; cf. Byrne, 1993).

Accordingly, the Dutch MBI version for teachers comprises twenty items subscaled in emotional exhaustion (EE; 8 items; e.g., “I feel emotionally drained by my work”), depersonalization (DP; 5 items; e.g., “I don’t really care what happens to some students”), and personal accomplishment (PA; 7 items; e.g., “I deal very effectively with the problems of my students”). Internal consistencies (Cronbach’s alpha coefficients) were .89, .56, .75 for EE, DP, and PA, respectively. Each statement is rated on a 7-point Likert scale ranging from 0 ‘a few times a year’ to 6 ‘every day’. High scores on emotional exhaustion and depersonalization and a low score on personal accomplishment reflect high burnout levels.

Reciprocity. Reciprocity in the relationship with students and with the school was assessed using two items for each exchange relationship consisting of a global investment item (“How much do you put into the relationship with your students” / “... the school?” - I), and a global outcome item (“How much do you get back in return from your students” / “... the school?” - O; Adams, 1965). Scoring categories ranged from 0 (*very little*) to 5 (*very much*). In order to evaluate the imbalance between investments and outcomes, ratio scores were calculated (O/I). A ratio greater than 1 indicates that outcomes exceed investments, whereas a ratio smaller than 1 indicates the opposite. A ratio score of 1 suggests a balanced or reciprocal exchange between investments and outcomes. Because reciprocity had to be assessed similarly at two different levels, global instead of specific investments and outcomes items were included. Van Dierendonck, Schaufeli, and Buunk (1996) showed the validity of our operationalization of reciprocity vis à vis an assessment in which subjects were asked to evaluate the ratio of investments and outcomes themselves. In addition, a recent study found a strong link between a similar single-item assessment of inequity and fourteen job features, including poor work environment (smell, noise, heat), job variety and job autonomy (VanYperen, Hagedoorn, & Geurts, 1996).

Analyses

Multivariate outliers can strongly influence the parameters in multiple regression equations. To track down potential multivariate outliers a screening method was applied as described by Bollen (1987). Variables entered in the screening process included the three burnout dimensions and relevant predictors. From the total sample ($N = 257$), 5 multivariate outliers and 3 cases with missing values were excluded from further analyses, resulting in a final sample of $N = 249$.

In the introduction, we hypothesized that lack of reciprocity in the relationship with students (Hypothesis 1) and in the relationship with

the school (Hypothesis 3) would be related to higher burnout levels. To test these hypotheses, a hierarchical multiple regression analysis was conducted with emotional exhaustion, depersonalization, and personal accomplishment as dependent variables. The independent variables reciprocity students and reciprocity school were entered simultaneously in the third step. Their product was entered in the fourth step to determine their interaction effect on burnout.

We also hypothesized that with regard to burnout, outcomes from students were more important than investments (Hypothesis 2) and that investments in school were more important than outcomes (Hypothesis 4). To test the relative contribution of outcomes and investments in both relationships in burnout, two hierarchical multiple regression analyses were conducted. To investigate Hypothesis 2, investments and outcomes in the relationship with students were entered simultaneously in the third step. To investigate Hypothesis 4, investments and outcomes in the relationship with the school were entered together in the third step.

Results

Results of the study are presented in two sections. First, correlations are presented between investments, outcomes and burnout. Second, the predictive values of social exchange processes with students and the school are presented for burnout.

Table 1 shows the means, standard deviations, and intercorrelations of the variables used.

Table 1 shows that reciprocity in the relationship with students was significantly correlated with all three burnout dimensions. When teachers feel that they invest more than they receive, emotional exhaustion and depersonalization levels are high, whereas personal accomplishment levels are low. With regard to reciprocity in the relationship with school, lack of reciprocity (i.e., investments exceed outcomes) is related to higher emotional exhaustion levels.

Table 2 reveals that demographic variables accounted for 1%, 10%, and 3% of the variance in emotional exhaustion, depersonalization, and personal accomplishment, respectively. Feelings of depersonalization were higher among male teachers than among their female colleagues. However, no significant gender differences were found for emotional exhaustion and personal accomplishment. Levels of reduced personal accomplishment tended to rise with age: Older teachers felt more incompetent than did their

■ TABLE 1

DESCRIPTIVE STATISTICS AND INTERCORRELATION OF VARIABLES: TOTAL SAMPLE
(N=249)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	
1 EE	15.35	9.94	—	—	—	—	—	—	—	—	—	—	—	1 EE
2 DP	5.46	4.31	.44 ***	—	—	—	—	—	—	—	—	—	—	2 DP
3 PA	30.77	6.47	-.23 ***	-.27 ***	—	—	—	—	—	—	—	—	—	3 PA
4 Investments Students	4.04	.80	-.02	-.30 ***	.34 ***	—	—	—	—	—	—	—	—	4 Investments
5 Outcomes Students	3.59	.95	-.20 **	-.37 ***	.47 ***	.61 ***	—	—	—	—	—	—	—	5 Outcomes Students
6 Reciprocity Students	.90	.21	-.24 ***	-.15 *	.24 ***	-.26 ***	.58 ***	—	—	—	—	—	—	6 Reciprocity Students
7 Investments Organization	3.84	.98	-.07	-.37 ***	.22 ***	.34 ***	.32 ***	.07	—	—	—	—	—	7 Investments Organization
8 Outcomes Organization	2.39	1.01	-.25 ***	-.19 **	.17 **	.16 *	.21 ***	.10	.23 ***	—	—	—	—	8 Outcomes Organization
9 Reciprocity Organization	.66	.30	-.13 *	.09	-.02	-.06	-.02	.03	-.48 ***	.68 ***	—	—	—	9 Reciprocity Organization
10 Age	45.00	6.98	.08	.17 **	-.18 **	-.19 **	-.18 ***	-.06	-.13 *	-.05	.08	—	—	10 Age
11 Teaching Experience	19.00	7.71	.08	.08	-.07	-.06	-.06	-.03	.02	.08	.06	.76 ***	—	11 Teaching Experience
12 Number of Hours Employed	33.00	9.28	-.01	-.10	.22	.07	.04	.00	.17 **	.05	-.10	-.18	.01	12 Number of Hours Employed

Note. EE = emotional exhaustion; Dp = depersonalization; PA = personal accomplishment. Reciprocity: A negative value indicates that investments exceed outcomes, whereas a positive value indicates that outcomes exceed investments. *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

younger colleagues. No significant age differences were found for emotional exhaustion and depersonalization.

Table 2 also shows that the set of work-related factors significantly explained 7% of the variance in depersonalization and 9% in personal accomplishment. Significant differences in burnout levels with regard to school type, number of hours employed, and teaching experience were found. Secondary-school teachers felt more emotionally exhausted than did elementary-school teachers. Moreover, feelings of depersonalization and reduced personal accomplishment were also higher among secondary-school teachers than among their elementary-school colleagues. As for the number of hours employed, emotional exhaustion and depersonalization levels among full-time teachers did not significantly differ from part-time teachers. However, full-time teachers felt more competent in their work than did part-time teachers. As far as teaching experience is concerned, no significant relations were found regarding any of the three burnout scales.

Hypothesis 1 about the role of social-exchange processes at the interpersonal level (teacher-student) in burnout was not supported. Results showed that a lack of reciprocity between investments and outcomes with students did not

significantly contribute to higher burnout levels. In agreement with Hypothesis 3, lack of reciprocity in the relationship with the school (i.e., investments exceed outcomes) was significantly related to higher levels of emotional exhaustion. We also assumed that lack of reciprocity at organizational level would have less influence on burnout than lack of reciprocity at interpersonal level. In fact, the opposite was found.

Hypotheses 2 and 4 presupposed outcomes to be more important in the relationship with students (Hypothesis 2), and investments to be more relevant in the relationship with the school (Hypothesis 4), respectively. Results of the two hierarchical multiple regression analyses are presented for investments and outcomes with students (step 3a) and with the school (3b; Table 3).

Table 3 shows that emotional exhaustion was significantly associated with teachers' investments and outcomes in the relationship with students, accounting for 6% of the explained variance. Emotional exhaustion levels were significantly higher when teachers either invested more or gained less from students. As predicted by Hypothesis 2, outcomes are of greater relevance than investments with regard to the two attitudinal burnout

■ TABLE 2

RECIPROCITY IN THE RELATIONSHIP WITH STUDENTS AND THE ORGANIZATION
(N = 249)

STEP	PREDICTORS VARIABLES ENTERED	EMOTIONAL EXHAUSTION				DEPERSONALIZATION				PERSONAL ACCOMPLISHMENT				STEP	PREDICTORS VARIABLES ENTERED
		β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2		
1	Age	0.08	.224	—	—	.11	.077	—	—	-.15	.018	—	—	1	Age
	Gender ^a	-.01	.884	—	—	-.30	.000	—	—	-.08	.232	—	—		Gender ^a
	Combined variables	—	—	.01	.01	—	—	.10	.10 ***	—	—	.03	.03 *		Combined variables
	School type ^b	.16	.022	—	—	.27	.000	—	—	-.29	.000	—	—		School type ^b
	Number of hours employed	.04	.576	—	—	-.08	.160	—	—	.13	.045	—	—		Number of hours employed
2	Teaching experience	.13	.226	—	—	.03	.732	—	—	.02	.874	—	—	2	Teaching experience
	Combined variables	—	—	.03	.02	—	—	.17	.07 ***	—	—	.12	.09 ***		Combined variables
	Reciprocity student ^c	.02	.798	—	—	.05	.412	—	—	-.04	.495	—	—		Reciprocity student ^c
	Reciprocity organization ^c	-.17	.010	—	—	-.05	.434	—	—	.05	.420	—	—		Reciprocity organization ^c
3	Combined variables	—	—	.06	.03 *	—	—	.18	.01	—	—	.12	.00	3	Combined variables
4	Reciprocity, Students x Organization	-.04	.566	.06	.00	.05	.366	.18	.00	.05	.340	.13	.01	4	Reciprocity, Students x Organization

Note. All variables are standardized with the exception of gender and school type. 0 = male, 1 = female. b) 0 = elementary-school teachers, 1 = secondary-school teachers. c) A negative value indicates that investments exceed outcomes, whereas a positive value indicates that outcomes exceed investments. * $p \leq .05$. *** $p \leq .001$.

■ TABLE 3

INVESTMENTS AND OUTCOMES IN THE RELATIONSHIP WITH STUDENTS AND THE
ORGANIZATION (N = 249)

STEP	PREDICTORS VARIABLES ENTERED	EMOTIONAL EXHAUSTION				DEPERSONALIZATION				PERSONAL ACCOMPLISHMENT				STEP	PREDICTORS VARIABLES ENTERED
		β	p	R ²	ΔR^2	β	p	R ²	ΔR^2	β	p	R ²	ΔR^2		
3a	Investments students	.22	.003	—	—	-.09	.201	—	—	.07	.254	—	—	3a	Investments students
	Outcomes students	-.29	.000	—	—	-.18	.007	—	—	.43	.000	—	—		Outcomes students
	Combined variables	—	—	.09	.06 ***	—	—	.23	.06 ***	—	—	.33	.21 ***		Combined variables
	Investments organization	-.00	.994	—	—	-.24	.000	—	—	.13	.045	—	—		Investments organization
	Outcomes organization	-.22	.000	—	—	-.04	.498	—	—	.10	.087	—	—		Outcomes organization
3b	Combined variables	—	—	.08	.05 **	—	—	.23	.05 ***	—	—	.15	.03 *	3b	Combined variables

Note. all variables are standardized. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

dimensions. That is, low outcomes from students were related to higher depersonalization and reduced personal accomplishment levels. Percentages of explained variances were 6% for depersonalization and 21% for personal accomplishment.

Results show that 5% of the variance in depersonalization and 3% of the variance in personal accomplishment was significantly explained by investments in the relationship with the school. In agreement with Hypothesis 4, these findings indicate that low investments were accompanied by higher levels of depersonalization and reduced personal accomplishment. Feelings of emotional exhaustion were significantly related to outcomes from the school, accounting for 5% of the variance. More specifically, teachers who gained less from the relationship with the school reported higher levels of emotional exhaustion.

In sum, particularly with regard to the attitudinal burnout dimensions (depersonalization and personal accomplishment), outcomes from students were more important than investments, whereas in the relationship with the school investments were more significant. Low outcomes from students were related to higher depersonalization and reduced personal accomplishment levels. Low investments in the relationship with school were related to higher levels of depersonalization and reduced personal accomplishment. However, low outcomes from the school were significantly related to higher emotional exhaustion levels.

Discussion

The main objective of this study was to investigate whether an imbalance between investments and outcomes (lack of reciprocity) in interpersonal and organizational exchange relationships was related to burnout among teachers. A general overview of the results found in the present study concerning the relation between demographic and work-related factors and burnout indicates that age and gender, along with school type (primary vs secondary) and number of hours employed (part-time vs full-time), have been found to be significantly related to burnout. Therefore, these factors were controlled for in this study. In agreement with findings in other studies, male teachers showed more feelings of depersonalization than female teachers (Anderson & Iwanicki, 1984; Greenglass, et al., 1990). With regard to age, it was found that older teachers felt more incompetent than did younger teachers. In other (mainly American) studies, opposite results are generally been found (e.g., Friedman, 1991). As for work-related factors, part-time teachers felt less competent than did their full-time colleagues. This finding is not supported in other studies (e.g., Anderson & Iwanicki, 1984; Friedman, 1991)

in which full-time teachers showed higher emotional-exhaustion levels than did part-time teachers. Our results on the relation between burnout and school type correspond with previous findings in which secondary-school teachers were found to be more burned out than elementary-school teachers (Anderson & Iwanicki, 1984; Gold & Grant, 1993). It has been argued by Gold and Grant (1993) that secondary-school teachers are more burned out because, compared with students from elementary schools, secondary-school students are less interested and more difficult to motivate.

As far as social-exchange processes are concerned, we had expected burnout to be related to lack of reciprocity at both interpersonal (Hypothesis 1) and organizational level (Hypothesis 3). However, this was only true for the exchange of investments and outcomes at organizational level. In addition, our assumption that lack of reciprocity in the relationship with the school would have less impact on burnout than lack of reciprocity in the more personal relationship with students was also not supported. Thus, at interpersonal level, teachers who experienced lack of reciprocity did not have higher scores on burnout than did teachers who experienced a reciprocal relationship with their students; whereas at organizational level, higher scores on emotional exhaustion were found for teachers who felt that they invested more than they got back in return. Obviously, for teachers, lack of reciprocity at organizational level is more relevant to burnout than lack of reciprocity at the interpersonal level. This finding might be explained by what has been stressed by Rosenholtz and Simpson (1990), who argue that school policies that impair the teachers' flexibility to perform their core instructional tasks tend to decrease teachers' commitment to the school. Thus, when teachers feel restricted in their work (i.e., teaching) because of poor working conditions, negative feelings such as a lower commitment, are likely to occur. It is not unlikely that the positive relation we found in our study between lack of reciprocity at organizational level and emotional exhaustion could also be explained by such poor working conditions: Teachers get tired of being ignored by the organization, it can be speculated. This agrees, for instance, with Mazur and Lynch (1989) who found that lack of recognition and appreciation from principles were related to burnout. Thus, feelings of being underappreciated may contribute to a more emotionally demanding work environment.

Borg and Riding (1991) too argued that in order to reduce teacher stress it is important to, "provide them with the facilities to carry out there job properly, to provide a decent working environment and not to overload them with work." (p. 370). To find more supporting evidence for the existence of such a relationship, future research needs to investigate which particular factors in the work environment of teachers are especially salient in social-exchange processes at organizational level.

This brings us to our second and fourth hypotheses, in which we assumed that with students, outcomes are more relevant in burnout (Hypothesis 2), whereas with the school, investments are more relevant (Hypothesis 4). Results confirm both assumptions as far as the attitudinal components of burnout (depersonalization and personal accomplishment) are concerned. Depending on the type of exchange relationship, either investments or outcomes are more strongly related to these burnout dimensions. More specifically, outcomes from students were found to be the most predictive for burnout, whereas in the relationship with the organization investments were more relevant. Elaborating on the relevance of outcomes in the relationship with students, results indicate that low outcomes from students were significantly related to higher levels of emotional exhaustion, depersonalization and reduced personal accomplishment. In explaining these findings we refer to the assumptions made in the introduction that on the intimate-impersonal continuum, the relationship with students is more intimate than the relationship with the school and that in the relationship with students outcomes are more relevant than investments. From these assumptions, it could be argued that teachers are more sensitive to what is gained from this relationship simply because teaching is highly 'existentially significant' for them (Pines, 1993).

The importance of outcomes for teachers is, to some extent, supported by Byrne (1991), who pointed out that along with the deterioration of the social climate of the classroom, teachers become emotionally exhausted. Moreover, they develop increasingly negative attitudes toward their students and teaching in general. Weisfelt (1993), too, argued that prolonged absence of positive feedback from students (i.e., students' progress, motivation, and enthusiasm, etc.) generates a sense of uselessness, resulting in a energy depletion. As expected in Hypothesis 4, results indicate that low investments were significantly related to higher depersonalization and reduced personal accomplishment levels, whereas low outcomes from the school were related to higher levels of emotional exhaustion. The finding that higher depersonalization levels were related to lower investments could be indicative of the relevance of Pritchard's argument that it is easier to alter negative feelings in a more impersonal relationship. Thus, in order to counteract these negative feelings, teachers might lower their investments and distance themselves from the school.

Some weaknesses in our study that warrant further research have to be addressed. First, in this study, a lack of reciprocity was measured by two items referring to investments and outcomes in general. In addition, the predictive value of lack of reciprocity with regard to burnout was rather small. Although the validity of this operationalization of reciprocity has been shown by Van Dierendonck et al. (1996), it is possible that in the relationship

with students and with the organization, different kinds of investments and outcomes are also important in burnout. Thus, to enhance our understanding of social exchange processes, future research has to concentrate on specifying these investments and outcomes. Second, teachers may use other principles to evaluate their investments and outcomes in a particular relationship than stated in equity theory. As Deutsch (1987) pointed out,

"as a result of the overemphasis of research on equity, with its implicit context of market economy, there has been insufficient research on distributive justice in other institutional contexts such as the family, the school, or the hospital. Other principles than equity may more strongly come into play in these other contexts." (p. 152)

For instance, when equality principles (i.e., outcomes are equal, regardless of investments) are considered, investments become less important in evaluating distributive justice (i.e., equity). Finally, the present study is cross-sectional in nature. Therefore, it can not be ruled out that lack of reciprocity or poor outcomes are consequences of burnout, rather than antecedents. That is, energy depletion (burnout) might change teachers' perceptions of the social-exchange process. In order to disentangle causality, longitudinal studies are needed to monitor changes in social-exchange processes and their effect on burnout as it relates to the teaching profession.

In spite of these weaknesses, our results indicate that gender, age, teaching experience, and school type are confounders that need to be controlled for when studying teacher burnout. Furthermore, social-exchange processes in teaching seem particularly relevant for the relationship with the school as far as burnout is concerned. Finally, and most importantly, the present study shows that differentiating between investments and outcomes at the interpersonal and organizational level, instead of including ratio scores of investments and outcomes at both levels, is a promising direction for further research in burnout.

REFERENCES

- Adams, J.S. (1965).
Inequity in social exchange.
In L. Berkowitz (Ed.),
Advances in Experimental Psychology (Vol. 2, pp. 267-299).
New York, NY: The Academic Press.
- Algemeen burgerlijk pensioenfonds (1995).
Arbeidsongeschiktheid, ambtenaren:
Een statistisch overzicht.. Onderwijs
[Incapacity in public service professions:
A statistical overview. Educators]
Heerlen: Algemeen burgerlijk pensioenfonds.
- Anderson, M.G., & Iwanicki, E.F. (1984).
Teacher motivation and its relationship to burnout.
Educational Administration Quarterly, 20 (2), 109-132.
- Belcastro, P.A., Gold, R.S., & Grant, J. (1982).
Stress and burnout: Physiologic effects on correctional teachers.
Criminal Justice & Behavior, 9 (4), 387-395.
- Blase, J.J. (1982).
A social-psychological grounded theory of teacher stress and burnout.
Educational Administration Quarterly, 18, (4), 93-113.
- Blase, J.J. (1986).
A qualitative analysis of sources of teacher stress:
Consequences for performance.
American Educational Research Journal, 23 (1), 13-40.
- Bollen, K.A. (1987).
Outliers and improper solutions:
A confirmatory factor analysis example.
Sociological Methods & Research, 15 (4), 375-384.
- Borg, M.G., & Riding, R.J. (1991).
Towards a model for the determinants of occupational stress
among schoolteachers.
European Journal of Psychology of Education, 6 (4), 355-373.
- Buunk, B.P., & Schaufeli, W.B. (1993).
Burnout: A perspective from social comparison theory.
In W.B. Schaufeli, C. Maslach, & T. Marek (Eds.),
Professional burnout: Recent developments in theory and research
(pp. 53-69).
New York, NY: Hemisphere.
- Byrne, B.M. (1991).
Burnout: Investigating the impact of background variables
for elementary, intermediate, secondary, and university educators.
Teaching & Teacher Education, 7 (2), 197-209.

- Byrne, B.M. (1993).
The Maslach Burnout Inventory: Testing for factorial validity and
invariance across elementary, intermediate and secondary teachers.
Journal of Occupational & Organizational Psychology, 66, 197-212.
- Commissie Toekomst Leraarschap (CTL) (1993).
Een Beroep met perspectief: De toekomst van het leraarschap
[A profession with prospect: The future of teaching professions].
Leiden, The Netherlands: Distributiecentrum DOP.
- Cox, T. , Kuk, G., & Leiter, M.P. (1993).
Burnout, health, work stress, and organizational healthiness
In: W.B. Schaufeli, C. Maslach, & T. Marek (Eds.),
Professional burnout: Recent developments in theory and research
(pp. 177-194).
New York, NY: Hemisphere.
- Deutsch, M. (1987).
Experimental studies of the effects of different systems
of distributive justice
In J.C. Masters & W.P. Smith (Eds.).
Social comparison, social justice, and relative deprivation:
Theoretical, empirical and policy perspectives (pp. 151-164).
London, UK: LEA.
- Friedman, I.A. (1991).
High- and low-burnout schools: School culture aspects
of teacher burnout.
Journal of Educational Research, 84 (6), 325-333.
- Gold, Y., & Grant, R.A. (1993).
Teachers managing stress and preventing burnout:
The professional health solution.
London, UK: The Falmer Press.
- Golembiewski, R.T., & Munzenrider, R.F. (1988).
Phases of burnout: Developments in concepts and application.
New York, NY: Praeger.
- Greenglass, E.R., Burke, R.J. , & Ondrack, M. (1990).
A gender-role perspective of coping and burnout.
Applied Psychology, 39 (1), 5-27.
- Hart, N.I. (1987).
Student teachers' anxieties:
Four measured factors and their
relationship to pupil disruption in class.
Educational Research, 29 (1), 12-18.
- Huseman, R.C., Hatfield, J.D., & Miles, E.W. (1985).
Test for individual perceptions of job equity:
Some preliminary findings.
Perceptual & Motor Skills, 16, 1055-1064.

- Huseman, R.C., Hatfield, J.D., & Miles, E.W. (1987).
A new perspective on equity theory: The equity sensitivity construct.
Academy of Management Review, 12 (2), pp 222-234.
- Lokhorst, A., Habets, P., Hoogendijk, A., & Kleipool, R. (1994).
Stress- en verzuimpreventie in het Onderwijs
[Stress and absenteeism prevention in education].
Meso Focus, 20. Houten, The Netherlands: Educatieve Partners.
- Maslach, C. (1982).
Burnout, the Cost of Caring.
Englewood Cliffs, NJ: Prentice-Hall
- Maslach, C. & Jackson, S.E. (1986).
Maslach Burnout Inventory.
Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C. (1993).
Burnout: A multidimensional perspective.
In W.B. Schaufeli, C. Maslach, & T. Marek (Eds.),
Professional burnout:
Recent developments in theory and research (pp. 19-32).
New York, NY: Hemisphere.
- Mazur, P.J., & Lynch, M.D. (1989).
Differential impact of administrative, organizational,
and personality factors on teacher burnout.
Teaching & Teacher Education, 5 (4), 337-353.
- Pines, A.M. (1993).
Burnout: An existential perspective.
In W.B. Schaufeli, C. Maslach, & T. Marek (Eds.),
Professional burnout:
Recent developments in theory and research (pp. 33-51).
New York, NY: Hemisphere.
- Poppel, J. van, & Kamphuis, P. (1992).
Gezondheid, werk en werkomstandigheden van het
onderwijzend personeel in het schooljaar 1990-1991
[Health, work and work Conditions in education, 1990-1991]
Tilburg, The Netherlands: IVA.
- Pritchard, R.D. (1969).
Equity theory: A review and critique.
Organizational Behavior & Human Performance, 4, 176-211.
- Rosenholtz, S.J., & Simpson, C. (1990).
Workplace conditions and the rise and fall of teachers' commitment.
Sociology of Education, 63, 241-257.
- Rousseau, D.M., & Parks, J.M. (1993).
The contracts of individuals and organizations.
In L.L. Cummings, & B.M. Staw (Eds.),
Research in organizational behavior (Vol. 15, pp. 1-43).
Greenwich, UK: JAI press.

- Schaufeli, W.B., & Bergers, G.P.A. (1992).
Burnout bij leerkrachten: Achtergronden en preventie
[Burnout among teachers: Background and prevention].
In N. Deen, M.J.M. Siddelaars-Jaspers, H.J.M. Hermans, & M. Kruger
(Eds.), *Handboek leerlingbegeleiding* (pp. 5140-1 - 5140-19).
Alphen a/d Rijn, The Netherlands: Samson.
- Schaufeli, W.B., Daamen, J.R.H., & Van Mierlo, J.A.J. (1993).
Burnout among Dutch teachers: An MBI validity study.
Educational & Psychological Measurement, 54 (3), 803-812.
- Schaufeli, W.B., VanDierendonck, D., & Van Gorp, K. (1996).
Burnout and reciprocity: Towards a dual-level social exchange model.
Work & Stress, 3, 225-237.
- Schaufeli, W.B., Van den Eynden, R.J.J.M., & Brouwers, H.M.G. (1994).
Stress en burnout bij penitentiare inrichtingswerkers:
De rol van sociaal cognitieve factoren
[Stress and burnout among correctional officers:
The role of social-cognitive factors].
Gedrag & Organisatie, 7, 216-224.
- Schaufeli, W.B. & Van Horn, J.E. (1995).
Maslach Burnout Inventory voor Leerkrachten (MBI-NL-Ed):
Handleiding
[Maslach Burnout Inventory for Dutch Educators: Manual].
Unpublished manuscript,
Universiteit Utrecht, Department of Social & Organizational Psychology.
- VanDierendonck, D., Schaufeli, W.B., & Buunk, B.P. (1996).
Inequity among human service professionals:
Measurement and relation to burnout.
Basic & Applied Social Psychology, 18, 429-451.
- VanDierendonck, D., Schaufeli, W.B., & Sixma, H.J. (1994).
Burnout among general practitioners:
A perspective from equity theory.
Journal of Social & Clinical Psychology, 13 (1), 86-100.
- VanYperen, N.W., Hagedoorn, M., & Geurts, S.A. (1996).
Intent to leave and absenteeism as reactions to perceived inequity:
The role of psychological and social constraints.
Journal of Occupational & Organizational Psychology, 69, 367-372.
- Walster, E., Walster, G.W., & Berscheid, E. (1978).
Equity: Theory and research.
Boston, MA: Allyn and Bacon.
- Weisfelt, P. (1993).
Ruimte voor persoonlijke ontwikkeling van docenten:
Suggesties voor uitdagende reizen door onderwijsland
[Teachers' personal development].
Tijdschrift voor Leerlingbegeleiding, 16 (4), 9-11.

INEQUITY, BURNOUT AND PSYCHOLOGICAL WITHDRAWAL AMONG DUTCH TEACHERS

A DYNAMIC EXCHANGE MODEL

SUMMARY

This study examined the relations among inequity, psychological well-being (burnout), and organizational commitment among a nationally representative longitudinal sample of 920 Dutch teachers. Equity theory provided hypotheses on the mutual effects of inequity experienced in interpersonal and organizational exchange relationships on the one hand, and strain and psychological withdrawal on the other. Following *Schaufeli, VanDierendonck, & Van Gorp (1996)*, differential effects of the inequity variables on the outcomes were predicted. Further, depersonalization towards students and colleagues, and diminished organizational commitment were expected to lead to a more equitable balance between investments in and benefits gained from the corresponding exchange relationships.

Covariance structure modeling was used to analyze data from a sample of 920 Dutch teachers. The distinction among different types of exchange relationships was supported, as was the distinction between different sets of outcome variables. Within time points, inequity resulted in the expected negative work outcomes, but this result was not replicated longitudinally. Interestingly, neither depersonalization towards students or colleagues nor diminished organizational commitment resulted in a more equitable exchange relationship. Implications of the study are discussed.

INTRODUCTION

Over the previous decade, a small body of research has focused on the relationship between perceived inequity in exchange relationships at work, and a range of work outcomes such as job satisfaction, turnover, organizational commitment, and burnout. At the heart of equity theory lies the assumption that people pursue a balance between what they ‘invest’ in a particular relationship (e.g., time, attention, skills, effort) and the benefits they gain from it, such as status, appreciation, gratitude, and pay (*Buunk & Schaufeli, 1999; cf. Adams, 1965*). Any disturbance of the balance between investments and benefits is expected to result in negative outcomes. Previous research has generally supported these predictions. For instance, inequity in various types of work relationships has been shown to be associated with job dissatisfaction (*Perry, 1993*), lack of organizational commitment (*Schaufeli, et al., 1996*), absenteeism and turnover (*Cropanzano & Greenberg, 1997; Geurts, Buunk, & Schaufeli, 1994a; Geurts, Schaufeli, & De Jonge, 1998;*

Geurts, Schaufeli, & Rutte, 1999; Iverson & Roy, 1994; Van Yperen, Hagedoorn, & Geurts, 1996), employee theft (*Greenberg, 1990; Shapiro, Trevino, & Victor, 1995*), and burnout (*Van Dierendonck, Schaufeli, & Sixma, 1994; Van Horn, Schaufeli, & Enzmann, 1999; Van Horn, Schaufeli, & Taris, 2001; Van Yperen, 1998*).

Although this evidence would seem impressive, progress in this area is hampered by two related problems. First, equity theory assumes that the stress ensuing from a disturbed balance between investments and outcomes will lead people to attempt to restore this balance (*Adams, 1965; Buunk & Schaufeli, 1999; Hatfield & Sprecher, 1984; Walster, Walster, & Berscheid, 1978*). Some of the work outcomes mentioned above can indeed be construed as more or less conscious strategies to obtain a more equitable balance, either by increasing the benefits gained from an exchange relationship (e.g., employee theft), or by decreasing one’s investments in this relationship (e.g., through behavioral withdrawal by leaving the organization, or through psychological withdrawal in the form of diminished commitment to the organization or depersonalization regarding the recipients of one’s services). However, to date researchers have heavily relied on cross-sectional data in examining the relations between inequity and outcome variables, conveniently ignoring the possibility that at least some of the designated ‘outcome’ variables might just as well affect the independent variables in the study. Consequently, little is known about the degree to which withdrawal strategies such as depersonalization and diminished organizational commitment are successful in obtaining and retaining equity in exchange relationships at work. Therefore, one goal of this study is to examine the possibly reciprocal effects between inequity and work outcomes, in the context of a two-wave panel study among a nationally representative sample of 920 Dutch teachers.

Second, the effects of inequity may be studied with regard to qualitatively different exchange relationships (e.g., with customers, patients or students, or, generally speaking, with the recipients of one’s services; with their colleagues; or with the organization they work for) as well as to a wide range of outcome variables. Previous research has shown that the effects of inequity on outcome variables tend to vary with the type of exchange relationship and type of outcome variable (*Schaufeli et al., 1996; Van Horn et al., 2001; Taris, Peeters et al., in press*). The second goal of the current study is to extend and enhance our understanding of the effects of inequity as experienced in various types of exchange relationships at work on different (sets of) outcome variables. Based on ideas of *Lazarus and Folkman (1984)*, this study distinguishes between two such sets, namely affective outcomes (strains), and outcomes directed at reducing (the effects of) occupational stress by withdrawing oneself psychologically from one’s job (a form of coping, cf. *Lee & Ashforth, 1996; Taris, Schreurs, & Van Iersel-Van Silfhout, in press; Kalimo, Taris, & Schaufeli, 2001*).

Lack of reciprocity

In Adams' (1965) seminal paper, the degree to which an exchange relationship is equitable is expressed in terms of the ratios of the investments and outcomes of one party and those of the other party, respectively. If one outweighs the other, lack of reciprocity or inequity exists. Note that 'lack of reciprocity' and 'inequity' are largely interchangeable terms in this conceptualization (Chadwick-Jones, 1976; Schaufeli et al., 1996; Taris, Peeters et al., *in press*); both involve the comparison of the ratio of own investments and outcomes to that of another party. Pritchard (1969) criticized this way of measuring inequity because it neglects the role of internal standards as a means for comparison. This 'internal standard' refers to "... the amount of outcome Person perceives as being commensurate with his own inputs, without regard to any comparison person" (p. 205). According to Pritchard, intra-personal comparisons play a crucial role in exchange processes, rather than social comparisons as proposed in classical equity theory. This internal standard is largely based on one's past experience in exchange relationships. Thus, in a sense 'intrapersonal' comparison is a form of interpersonal comparison where the other is replaced with one's own earlier experiences; previous experience tells one whether a particular input/outcome ratio is equitable or not. A similar stance is implicitly taken in Siegrist's (1996) Effort -Reward - Imbalance theory, in which workers evaluate their efforts against the rewards they receive from their job, and Hatfield et al.'s well-used (1984) single-item equity measure, asking workers to evaluate their own inputs in a particular relationship against own outcomes: in neither case reference to others (e.g., one's co-workers) is included. Following this lead, reciprocity is defined here as the equality of one's perceived investments in and benefits from an exchange relationship, relative to this person's internal standards regarding this relationship.

Interpersonal vs. organizational exchange relationships at work

Buunk and Schaufeli (1993) attempted to connect social exchange processes in the context of the work organization with burnout — a psychological syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment that can occur among individuals who work with other people in some capacity (Maslach, 1993). Emotional exhaustion refers to feelings of being emotionally overextended and depleted of one's emotional resources. Depersonalization involves a negative, indifferent, or overly detached attitude to others. Finally, reduced personal accomplishment refers to a decline of feelings of competence and achievement in one's work.

Buunk and Schaufeli (1993) started from the assumption that burnout develops primarily within the social and interpersonal context of the work organization. If this is correct, attention should be paid to the way individuals perceive, interpret and construct the behaviors of others at work. Following Maslach (1982, 1993), Buunk and Schaufeli focused on the demanding interpersonal relationship between a provider of services (e.g., nurses or teachers) and the recipients of these services (patients and students, respectively). This relationship is complementary by definition, in that one party gives, and the other receives. Because provider and recipient enter their relationship with different expectations towards each other, it is difficult to establish an equitable relationship (Maslach, 1982; Roter & Hall, 1991). While this complimentary relationship lies at the heart of the exchange relationship between provider and recipient, the first will continue to look for some rewards from the latter in return for their efforts. For instance, teachers expect their students to show some gratitude, respect, or at least to try to obtain good grades. In practice, however, these expectations may not be met (*cf.* Maslach, 1982). As a result, over time providers may feel that they continually invest more in the relationship with the recipients of their services than they receive in return. This eventually depletes their emotional resources and, thus, leads to emotional exhaustion (the core component of burnout), depersonalization (as a way of coping with this exhaustion), and feelings of reduced personal accomplishment (Leiter & Maslach, 1988; *cf.* Cordes, Dougherty, & Blum, 1997; Lee & Ashforth, 1993). This reasoning has been confirmed in several studies among for example general practitioners (Bakker et al, 2000; VanDierendonck et al., 1994), hospital nurses (Schaufeli et al., 1996; Van Yperen, 1998), and teachers (Van Horn et al., 1999; Van Horn et al., 2001).

Whereas the balance between investments and benefits in the exchange relationship with one's colleagues may not be as systematically disturbed as the exchange relationship with the recipients of one's services, it would seem that the effects of inequity in this type of social exchange relationship may be detrimental as well. Previous research has underlined the importance of the quality of the relationship with colleagues and co-workers for work outcomes such as the development of career enhancing strategies (Feij, Whitely, Peiró, & Taris, 1995), organizational commitment (Mathieu & Zajac, 1990), job strain (Kahn & Byosiére, 1992), and burnout (Leiter & Maslach, 1988), but these studies were usually not framed in a social exchange framework. Yet, Buunk and Hoorens (1992) and Schaufeli et al. (1996) argued that relationships among colleagues at work can be construed in terms of social exchange relationships as well. For instance, there is some evidence that employees keep 'support bookkeeping' that is based on the balance between giving and receiving support from others. Given the centrality of the relationships with colleagues for work-related outcomes, it would seem reasonable to expect that inequity in the exchange relationship with one's colleagues is an important determinant of burnout.

Inequity in an organizational context

It has been argued that burnout should not only be examined in the context of interpersonal relationships at work, but also in the context of the exchange relationship with the organization (cf. Golembiewski & Munzenrider, 1988; O'Driscoll, & Cooper, 1996; Shinn, Rosario, Morch, & Chestnut, 1984). A body of evidence adds some credence to this notion, showing how particular characteristics of the job and the organization are associated with the occurrence of burnout (e.g., Cordes & Dougherty, 1993, for a review). However, little research favoring an organizational perspective on burnout has provided a psychological explanation for the development of burnout in the organizational setting.

According to Schaufeli et al. (1996), the notion of a psychological contract between employer and employee (Robinson & Parkes, 1994; Rousseau & Parkes, 1993) may provide a useful theoretical starting point for such an explanation. The psychological contract is defined as a set of expectations that employees hold about the nature of their exchange with the organization, for instance, concerning work load and pay. The psychological contract reflects the employees' subjective notion of equity and serves as a baseline, against which own investments and benefits are evaluated. A violation of the psychological contract may result in negative work outcomes, including a higher intention to quit and higher turnover (Robinson & Parkes, 1994), absenteeism (Geurts, Schaufeli, & Buunk, 1994a, 1994b), and burnout (Schaufeli et al., 1996; Kalimo et al., 2001). This is consistent with Brill's (1984) notion of burnout as an "... expectationally mediated, job-related dysphoric and dysfunctional state" (p. 15). Thus, unmet expectations about reciprocity lie at the core of a violation of the psychological contract.

Generic vs. specific outcomes of perceived inequity: Coping with strain and inequity

The distinction between interpersonal and organizational exchange relationships is explicitly recognized in Schaufeli et al.'s (1996) dual-level social exchange model. This model distinguishes between inequity experienced in interpersonal relationships at work, and inequity in the exchange relationship with the organization. Schaufeli et al. showed that both forms of inequity contributed to the occurrence of burnout, whereas only inequity in the exchange relationship with the organization contributed to poor organizational commitment. On the one hand, these findings underline the importance of distinguishing between various types of exchange relationships at work; on the other hand, however, they also point to the need to distinguish among different (sets of) outcome variables, contingent on

the type of exchange relationships under study. That is, some outcomes may be generic, in that they are affected by inequity experienced in a variety of exchange relationships, whereas other outcomes could be specific to inequity experienced in one particular type of exchange relationship only.

Following Lazarus and Folkman (1984), in the current study we distinguish between strains and coping behaviors. Strains, such as emotional exhaustion, may be considered generic outcomes, in the sense that strain will result from a disturbance in any exchange relationship. Coping behaviors, in contrast, will be tightly linked to particular exchange relationships. That is, people will be motivated to restore a disturbed balance, but the actions they take will correspond with the type of relationship in which they perceive a lack of equity. According to Lerner (1984), people are producers of their own environment, rather than passive recipients of the forces that shape this environment. If this is correct, workers experiencing inequity in their exchange relationships can be expected to try to obtain a more equitable balance. Following Adams (1965), Walster et al. (1978) suggested that a lack of reciprocity can be dealt with by decreasing one's investments in an inequitable relationship. They mention several strategies that people may use to restore a disturbed equilibrium between investments and benefits. Many of these strategies (such as retaliation) are usually inappropriate or impractical within the exchange relationships people maintain at work. As Bakker et al. (2000) suggested, a psychological strategy to restore equity (such as developing negative attitudes towards the recipients of their services, their colleagues or the organization they are working for) may be a more feasible strategy under such circumstances. Precisely such callous, cynical, impersonal and derogatory attitudes constitute the depersonalization dimension of the burnout syndrome.

By responding to the recipients of their services or their colleagues in a depersonalized way instead of expressing genuine empathic concern, people lower their investments in these exchange relationships (Buunk & Schaufeli, 1993, 1999; Schaufeli et al., 1996). In this sense, depersonalization towards colleagues or the recipients of one's services can be considered as motivational outcomes directed at restoring the disturbed exchange relationship with these colleagues or recipients, respectively, that is, as coping behaviors. Decreasing one's commitment to the organization would seem to be a similar strategy: by lowering their commitment to the organization, people simultaneously decrease their psychological investments in that organization, resulting in a more equitable balance between investments in and benefits gained from this exchange relationship. Depersonalization and (lack of) organizational commitment may thus be considered as more or less conscious strategies to cope with the stress

ensuing from an disturbed balance between investments and benefits, in the sense of Lazarus and Folkman (1984) stress-strain-coping model (cf. Leiter & Maslach, 1988; Lee & Ashforth, 1996). By lowering own investments in that relationship, people bring about a more equitable balance between investments and benefits in a disturbed exchange relationship.

A heuristic model for the relations among inequity, strain, and psychological withdrawal

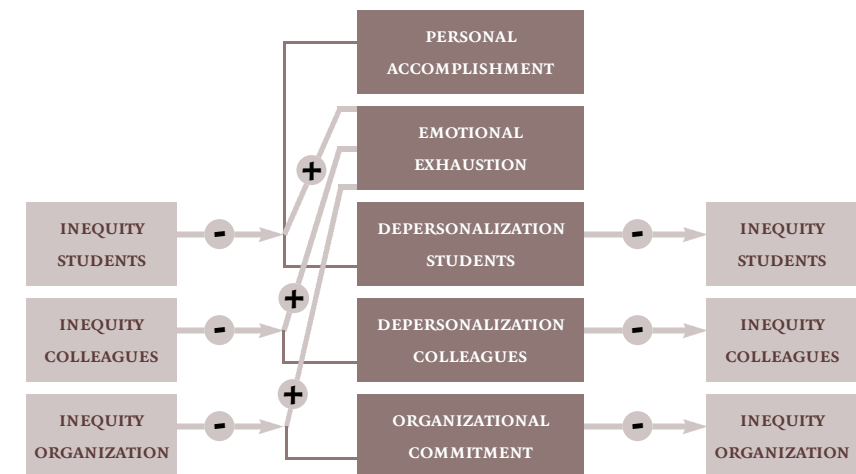
Taken together, the notions outlined above suggest a complex and dynamic model for the relations between lack of reciprocity in exchange relationships on the one hand and work outcomes such as organizational commitment, depersonalization, and emotional exhaustion on the other. Whereas inequity usually coincides with (rather than 'leads to', for want of longitudinal studies) high burnout rates and low organizational commitment, it seems plausible to assume that people experiencing inequity in their exchange relationships at work will try to reach a more equitable balance between investments and benefits across time, by lowering their investments in a disturbed exchange relationship (as evidenced by high levels of psychological withdrawal, i.e., high levels of depersonalization and low levels of organizational commitment). This, in turn, might lead to a decrease in feelings of burnout.

Figure 1 presents a heuristic representation of the model to be tested in this study. It is tailored to the sample under study here, that is, a longitudinal sample (two waves) of Dutch primary, secondary and vocational school teachers. The model is based on the theoretical considerations outlined in the preceding sections, and can be considered as a set of explicit hypotheses on the expected relations among the variables in this study. As Figure 1 shows, a distinction is made between three types of exchange relationships (with students, colleagues, and the organization, respectively). Inequity experienced in each of these relationships results in two types of outcomes, namely in strains and withdrawal.

Strain (emotional exhaustion) is the result of the negative affect caused by perceived inequity in any of the three exchange relationships considered here, and is therefore not strongly linked to any exchange relationship in particular. In contrast, the type of psychological withdrawal that occurs is contingent on the type of relationship in which inequity is experienced. For example, inequity in the relationship with one's students will result in withdrawal (depersonalization) from these students (and not in withdrawal from one's colleagues). Similarly, inequity in the relationship with one's colleagues will result in withdrawal from these colleagues (but not from

■ **FIGURE 1**

CONCEPTUAL MODEL FOR THE EXPECTED RELATIONS AMONG INEQUITY IN THREE TYPES OF EXCHANGE RELATIONSHIPS



the students). Organizational commitment can also be considered as a form of psychological withdrawal, to the degree that low organizational commitment increases one's intentions to leave the organization as well as actual turnover (Mathieu & Zajac, 1990). As such, it will be strongly influenced by inequity in the exchange relationship with the organization.

The third component of the burnout syndrome, reduced personal accomplishment, fits the scheme of strain versus coping behaviors less well than the other outcome variables considered here. In principle, personal accomplishment refers to the subjective experience of own competence and achievement in one's work. Some might hold that this implies that personal accomplishment is a behavioral outcome (cf. Dollard, Winefield, Winefield, & De Jonge, 2000), but equating feelings about own performance to performance itself does seem a bridge too far. Rather, we feel that personal accomplishment is nothing but an affective judgment concerning own competence. Schachter and Singer's (1962) attribution-of-arousal theory maintained that particular stimuli may result in arousal, and that the person interprets this arousal in the light of the situation as interpreted by the person. In the context of stress at work, people may consider the degree to which they experience stress as a measure of their performance. The fact that maintaining a particular exchange relationship currently leads to stress whereas this may have been different in the past may lead them to conclude that

they perform less well than they used to. If this is correct, there should be a negative association between inequity and levels of personal accomplishment. However, as a teacher's task consists largely of interaction with students (cf. Van Horn et al., 2001), we expect that only inequity in this particular exchange relationship will have any considerable impact on teachers' feelings of personal accomplishment.

Finally, Figure 1 includes three 'feedback' effects. It is assumed that inequity experienced in a particular exchange relationship leads to psychological withdrawal from that relationship (either in the form of depersonalization, or as diminished commitment), which in time is expected to lead to a more equitable ratio between the investments in and the benefits gained from that relationship.

METHOD

The data were collected as part of a two-wave panel study. The study was conducted among a nationally representative sample of 1,309 Dutch teachers (Mage was 43.6 years, SD = 8.0, 51% female, average number of years of teaching experience was 19.1 years, SD = 8.3, 58% were employed in primary schools, 27% in secondary schools and 13% in vocational schools). At the first wave (winter 1996), the participants completed a written questionnaire that addressed psychological and physical well-being, selected work characteristics, inequity, and several biographical variables. The large majority of the sample (998 participants) also cooperated in the second wave of the study (winter 1997), yielding a 76.2% response rate. A multivariate analysis of variance revealed that the mean scores of those who dropped out of the study on the variables employed in this study did not differ significantly from those who remained in the study, $F(11, 1118) = .66$, ns. Thus, drop-out did not seem to be selective. After listwise deletion of missing values, the final sample included 920 participants.

Measures

Levels of burnout were assessed using a Dutch adaptation of the Maslach Burnout Inventory — Educators Survey (MBI-ES, Maslach & Jackson, 1986; Van Horn & Schaufeli, 1998). The MBI-ES consists of three subscales, emotional exhaustion, depersonalization, and (reduced) personal accomplishment, respectively. Previous research has shown that the intercorrelations among the three subscales of the (human services version of) the MBI are

moderately high, whereas they retain different patterns of relations with other variables (Lee & Ashforth, 1996; Schaufeli, Daamen, & Van Mierlo, 1994; cf. Taris, Schreurs, & Schaufeli, 2000). Consistent with these findings, confirmatory factor analysis revealed that in the current study the relations among the items of the three subscales were at both occasions best accounted for by an oblique three-factor solution (i.e., a model in which the items of the three subscales all load on the expected latent dimension, whereas the three latent dimensions are mutually correlated: chi-square (166, N = 920) = 999.65, RMR = .061, NNFI = .90, CFI = .91). The latent correlations among the three dimensions ranged from .41 to .49, all p 's < .001. Further, the three subscales all loaded on the same latent second-order factor, with standardized factor loadings ranging from .62 to .74 (p 's < .001). These results show that (a) the three scales are only moderately correlated, whereas (b) they still tap the same underlying construct.

Emotional exhaustion refers to feelings of being emotionally overextended and depleted of one's emotional resources (Maslach, 1993). Typical items are "I feel emotionally drained from my job" and "I feel used up at the end of a work day" (0 = 'never', 6 = 'everyday'). The reliability of this 8-item scale (Cronbach's alpha) was .91 and .92 for time one and time two, respectively.

Depersonalization regarding one's students refers to a negative, overly detached, and indifferent attitude to one's students. This concept was tapped by a 7-item scale. Typical items were "I worry that this job is hardening me emotionally", and "I feel that I treat some students indifferently" (0 = 'never', 6 = 'everyday'). In comparison to Maslach and Jackson's (1986) MBI-ES, two items were added to this scale to improve its reliability. These items were "In my work people bother me with personal problems I don't want to be bothered with", and "I try to keep away from personal problems of my students". The reliabilities of this scale were .66 and .69 for time one and time two, respectively.

Depersonalization regarding one's colleagues refers to a negative, overly detached, and indifferent attitude to one's colleagues. This self-constructed scale roughly paralleled the depersonalization scale for the students and consisted of 8 items, including "I really do not care about what happens to my colleagues", "I avoid my colleagues as much as possible", and "I like working with my colleagues" (reversed, 0 = 'never', 6 = 'everyday'). The reliabilities of this scale were .89 at both time points.

Personal accomplishment refers to a decline of feelings of competence and successful achievement in one's work. It is measured by an 7-item scale (reliabilities were .86 and .87 at time one and time two, respectively). Typical items were "I feel I am positively influencing other people's lives

through my work”, and “I think I know how to deal with my students’ problems effectively” (0 = ‘never’, 6 = ‘everyday’).

Organizational commitment was a six-item Dutch adaptation of Mowday, Porter, and Steers’s (1979) Organizational Commitment Questionnaire (OCQ). According to Mowday et al., the OCQ taps “... the relative strength of an individual’s identification with and involvement in a particular organization” (p. 241). Typical items are “I tell my friends that this school is a fine organization to work for”, and “I feel that this school offers a challenging work climate”. The reliabilities for this scale were .91 and .93 at time one/time two, respectively.

Inequity. Inequity was assessed for three exchange relationships, namely with students, colleagues, and the organization. Two measures were available for each relationship. The first of these was a variation on Hatfield, Traupmann, Sprecher, and Hay’s (1985) well-used single-item equity measure (cf. Van Dierendonck et al., 1996). For the relationship with the students, this item was “When I compare the investments in the work relationship with my students to the benefits that result from this relation, I receive ... than I invest” (1 = ‘much less’, 5 = ‘much more’). For the two other relationships, ‘students’ was replaced with ‘colleagues’ and ‘school management’, respectively.

The second item was computed as the ratio of the scores on two other items. The first of these tapped the subjective investments in a particular relationship: ‘How much do you invest in the work relationship with your students?’ (1 = ‘very little’, 5 = ‘very much’). The second item measured the perceived benefits of this relationship: “How much do you receive in return in this relationship?” (1 = ‘very little’, 5 = ‘very much’). Similar questions were asked for the other two relationships. The distributions of the resulting three ratio variables were rather skewed (skewnesses exceeding 2.00), implying that the application of statistical techniques that require normally distributed variables (such as covariance structure modeling) was not warranted. In order to obtain more normally distributed variables, the natural logarithm of the scores on the three ratio variables was taken. This resulted in variables that were approximately normally distributed (skewnesses < 1.50). All items were coded such, that a high score indicated high inequity.

The correlation between the two measures varied from .56 to .71 (see Appendix, all p ’s < .001) for each of the three exchange relationships across both time points (median correlation .64). Separate confirmatory factor-analyses revealed that for each time point a three-factor model could be retained, with the latent factors corresponding with inequity in the relationship with the students, colleagues, and school, respectively, chi-square (34, $N = 920$) at time 1 was 34.38, $p < .01$, RMR = .02, GFI = .99,

NNFI = .95, RFI = .94, and chi-square (6, $N = 920$) = 33.58 AT TIME 2, $p < .01$, RMR = .02, GFI = .99, NNFI = .96, RFI = .95. Further analyses of the covariance matrix revealed that this factor structure was the same at each time point, chi-square (27, $N = 920$) was 101.17, $p < .01$, RMR = .01, GFI = .98, NNFI = .97, RFI = .96. Thus, this specification was retained in the main analyses. Finally, confirmatory factor analyses revealed that the factorial structure of all scales was virtually identical across time. Thus, there was no reason to assume that the meaning of the scales changed across time points (Golembiewski, Billingsley, & Yeager, 1976; Taris, Bok, & Meijer, 1998).

Table 1 presents the means and standard deviations for the variables employed in this study. As this table shows, the participants felt more emotionally exhausted across time ($p < .001$), whereas they felt slightly more depersonalized in their relations with students and colleagues (p ’s < .05) as well. Interestingly, they did not experience less equity in relation to their students, colleagues or their school. Neither was there significant across-time change in organizational commitment.

■ **TABLE 1**

MEANS AND STANDARD DEVIATIONS OF THE VARIABLES EMPLOYED IN THIS STUDY
(FULL SAMPLE, $N = 920$)

VARIABLES	TIME 1		TIME 2		T ^a
	M	SD	M	SD	
inequity students	3.34	.78	3.36	.77	ns
imbalance students	.19	.28	.18	.27	ns
inequity colleagues	3.21	.54	3.23	.59	ns
imbalance colleagues	.09	.22	.09	.23	ns
inequity organization	3.81	.77	3.83	.77	ns
imbalance organization	.57	.51	.57	.50	ns
emotional exhaustion	1.86	1.14	2.00	1.20	4.96**
depersonalization (students)	1.22	.87	1.29	.87	2.52*
depersonalization (colleagues)	1.97	.58	2.01	.58	2.45*
personal accomplishment	4.13	.84	4.11	.83	ns
organizational commitment	3.49	.82	3.46	.81	ns

^a The error term of these comparisons has 918 df.

* = $p < .05$, ** = $p < .001$.

Statistical analysis

The data were analyzed by means of covariance structure modeling (Jöreskog & Sörbom, 1993). The variables in such models can be latent (i.e., they are functions of two or more observed indicator variables) or manifest (there is only one indicator for a particular construct). Covariance structure modeling marries factor analysis to regression analysis, in that this technique allows for a simultaneous estimation of a measurement (factor) model (representing the relations among the observed indicator variables and the latent variables) as well as a structural (regression) model (for the relations among the latent variables). In the current study inequity in each of the three exchange relationships was measured by two indicators at both occasions. There was a one-to-one relationship between the observed and the latent variables for the remaining variables.

Model fit was assessed using several fit indexes, including the chi-square test, the Root Mean Square (RMR), and the Adjusted Goodness-of-fit Index (AGFI). Marsh, Balla, and MacDonald (1988) demonstrated that these fit indexes are rather sensitive to variations in sample size, such that in large samples models seldom fit the data, even if the difference between the 'true' model and the specified model is negligibly small. Therefore, we also took into account Bentler and Bonett's (1980) Non-normed Fit Index (NNFI) and the Comparative Fit Index (CFI, BENTLER, 1990). The latter is also recommended for model comparison purposes (Goffin, 1993).

For cross-validation purposes, the current sample (including 920 participants) was split into two subsamples of 460 participants each. On each subsample an independent analysis of the null model was performed. The results for each sample were then compared to obtain an impression of the degree to which capitalization on chance presented a threat to the validity of the study (cf. Cudeck & Browne, 1983; MacCallum, Roznowski, & Necowitz, 1992). The correlations among the variables are presented in the Appendix.

RESULTS

The model presented in Figure 1, complemented with the expected longitudinal effects, was fitted to both data sets. As the fit indexes in Table 2 show, the null model fitted the data well across both data sets (AGFI, NNFI and CFI all exceeding .90, chi-square/df ratio 1.68 or better). However, inspection of the parameter estimates and the corresponding T-values revealed that several effects were not significantly different from zero.

These effects were omitted. The fit of the models, however, remained virtually unchanged.

Table 3 presents the standardized parameter estimates for the final models. It is convenient to discuss these results in three separate sets of effects. The first of these concerns the relations among the variables within time points only (i.e., how well accounts the model presented in Figure 1 for the data collected at each of the two time points, considered as two cross-sections). The second set of results applies to the longitudinal extension of the model presented in Figure 1 (i.e., can the effects found within time points be replicated across time). Finally, the third set of results refers to the effects of the three withdrawal/coping-variables (depersonalization regarding students and colleagues, and lowered organizational commitment) as measured at time one on the inequity-variables measured at time two (i.e., does psychological withdrawal from a relationship result in a more equitable ratio between investments and returns for this relationship).

Cross-sectional results. In the introduction to this paper we distinguished between strains and variables reflecting psychological withdrawal. Strain (i.e., emotional exhaustion) was expected to be affected by all three types of exchange relationships, whereas the withdrawal variables (depersonalization with regard to one's students and depersonalization with regard to one's colleagues, and organizational commitment) were assumed to be related to one type of exchange relationship in particular, and not to the other types. Table 3 reveals that these expectations were largely supported within each cross-section and across samples. Increases in emotional exhaustion were indeed predicted by increases of inequity in all three exchange relationships. Inequity in the exchange relationships with students and in the relationship with the organization were most consistently related to exhaustion (effects ranging from .21 to .34 for the students, and from .08 to .30 for the organization, all effects $p < .01$ or better). The effects of inequity in the

■ TABLE 2

COMPARISON OF THE FIT OF THE NULL MODEL AND THE FINAL MODEL FOR EACH SUBSAMPLE

SAMPLE 1 (N = 460)	DF	χ^2	AGFI	RMR	NNFI	CFI
null model	171	245.34	.97	.047	.99	.99
fitted model	176	253.28	.97	.048	.99	.99
SAMPLE 2 (N = 460)	DF	χ^2	AGFI	RMR	NNFI	CFI
null model	171	287.83	.97	.051	.98	.98
fitted model	177	295.10	.97	.051	.98	.98

■ TABLE 3

STANDARDIZED LEAST SQUARES ESTIMATES FOR THE FITTED MODELS (STRUCTURAL EFFECTS ONLY, UPPER ESTIMATE SAMPLE A, LOWER ESTIMATE SAMPLE B)

TIME 2	EXHAUS- TION	DEPERS. STUDENTS	PERSONAL ACCOMPL.	DEPERS. COLLEAGUES	ORGAN. COMMIT.	INEQUITY STUDENTS	INEQUITY COLL. ^b	INEQUITY ORGANIZ. ^b	EXHAUS- TION	DEPERS. STUDENTS	PERS. ACCOMPL.	DEPERS. COLLEAGUES	ORGAN. COMMIT.
Inequity students ^b	.30***a	.15***a	-.24***a	—	—	—	.30***a	.15***a	-.24***a	—	—	—	—
Inequity colleagues ^b	.21***a	.21***a	-.28***a	—	—	—	—	—	—	—	—	—	—
Inequity organization ^b	.13***a	—	—	.14***a	—	—	—	—	—	—	—	—	—
	ns	—	—	.19***a	—	—	—	—	—	—	—	—	—
	.08***a	—	—	—	-.40***a	—	—	—	—	—	—	—	—
	.29***a	—	—	—	-.42***a	—	—	—	—	—	—	—	—
TIME 1													
Exhaustion	.72***a	—	—	—	—	—	—	—	—	—	—	—	—
	.83***a	—	—	—	—	—	—	—	—	—	—	—	—
Depersonal. students	—	.54***	—	—	—	.23***	—	—	—	—	—	—	—
	—	.61***	—	—	—	.11*	—	—	—	—	—	—	—
Personal accomplishment	—	—	.62***	—	—	—	—	—	—	—	—	—	—
	—	—	.70***	—	—	—	.09*	—	—	—	—	—	—
Depersonal colleagues	—	—	—	.69***	—	—	ns	—	—	—	—	—	—
	—	—	—	.72***	—	—	—	ns	—	—	—	—	—
Organizational commitment	—	—	—	—	.82***	—	—	ns	—	—	—	—	—
	—	—	—	—	.82***	—	—	—	.34***a	.18***a	-2.7***a	—	—
Inequity students	-.16*	ns	ns	—	—	.67***	—	—	.25***a	.25***a	-3.3***a	—	—
	—	-.15*	ns	.19*	—	.62***	.66***	—	.14***a	—	—	.16***a	—
Inequity colleagues ^b	-.16*	—	—	ns	—	—	.53***	—	ns	—	—	.19***a	—
	ns	—	—	ns	—	—	—	.71***a	.09***a	—	—	—	-.46***a
Inequity organization ^b	ns	—	—	—	.32**	—	—	.64***a	.30***a	—	—	—	-.45***a
	-.20**	—	—	—	.30**	—	.46	.51	.19	.03	.07	.03	.21
R ²	.67	.38	.53	.54	.72	.57	.29	.40	.20	.06	.11	.04	.20
	.77	.49	.54	.58	.75	.44							

^a This effect was constrained to be equal across occasions. ^b Standardized loadings vary between .72 and .89, median loading .78, all p's < .001. * = p < .05, ** = p < .01, *** = p < .001. ns = effect was hypothesized but not significant (p > .05), and thus omitted.

relationship with the colleagues were somewhat weaker and less consistent across samples (effects of .13 and .14 in sample A, effects ns in sample B).

As regards the three ‘specific’ outcome variables, we found that feelings of depersonalization in relation to the students were predicted exclusively by perceived inequity in the exchange relationship with the students (effects of .15 to -.25, p ’s < .001). Similarly, feelings of depersonalization in relation to ones colleagues were predicted by perceived inequity in the exchange relationship with these colleagues (effects of .14 to -.10, p ’s < .001), but not by other variables. Finally, lowered levels of organizational commitment were associated with higher levels of inequity as experienced in the relationship with the organization (effects of -.40 to -.46, p ’s < .001).

We expected lack of personal accomplishment to be especially strongly related to inequity experienced in the relationship with the students. This reasoning was confirmed by effects ranging from -.24 to -.33 (p ’s < .001), supporting the idea that teachers use the levels of stress resulting from inequitable relationships with students as an indication of their performance.

Whereas these results are consistent with the ideas advanced in the introduction to this study, it should be noted that they are based on cross-sectional data. Thus, while these results suffice to show that one may distinguish among various types of exchange relationships (as evidenced by differential patterns of relationships with other variables), these relationships cannot be interpreted in causal terms. The next set of results focuses on the longitudinal implications of this model.

Longitudinal effects of inequity on the outcome variables. Table 3 shows that the direct lagged effects of the Time 1 inequity variables on the outcome variables as measured at Time 2 were not significantly different from zero in 7 out of 14 cases. If they were significant, the magnitude of these effects was quite small (effects ranging from .15 to .32, median value .19, p ’s < .05), and as a rule they did not replicate across samples. Interestingly, whenever an effect was found, its direction was contrary to what was expected. For example, within each cross-section inequity in the exchange relationship with the organization was negatively related to commitment to that organization (effects of -.40 to -.46, p ’s < .001, cf. Table 3). However, the corresponding longitudinal effect were positive (effects were .30 and .32, p ’s < .01). This finding is even more noteworthy as the corresponding across-time correlation coefficients underlying this effect were also negative (r ’s ranging from -.11 to -.25, p ’s < .001, cf. Appendix). Similar findings apply to the longitudinal effects of the inequity variables on other outcome variables. The least that can be concluded from these findings is that there is no

longitudinal support for the model presented in Figure 1. Although teachers who experienced much inequity in their exchange relationships at time one also experience more negative work outcomes at time two, these effects were largely indirect (via time one work outcomes and time two inequity), rather than via direct effects of time one inequity on the time two outcome variables.

Feedback-effects of the withdrawal-variables on lack of reciprocity. Finally, it was hypothesized that psychological withdrawal from a particular exchange relationship (in terms of depersonalization with regard to one’s students and colleagues, and diminished commitment to the organization, respectively) would result in a more equitable balance between investments in and benefits gained from that relationship. Table 3 shows that these ideas were not supported by the data. Rather, there was some evidence that teachers who obtained high scores on the withdrawal-variables at time one experienced less equity in the corresponding exchange relationships at time two. For example, in both samples high depersonalization with regard to one’s students was associated with more feelings of inequity in this relationship at time two (standardized effects of .23 and .11, p ’s < .05). Similarly, in one sample high depersonalization regarding one’s colleagues at time one was related to more feelings of inequity in the relationship with one’s colleagues at time two (an effect of .08, p < .05). These results suggest that psychological withdrawal from an exchange relationship is not an effective strategy to obtain a more equitable balance between investments and benefits. Rather, it seems that psychological withdrawal from a disturbed exchange relationship fosters a deterioration of the balance between investments and rewards.

DISCUSSION

The current study examined the relations among perceived inequity in three types of exchange relationships (with students, colleagues, and the organization, respectively) on several outcome variables (organizational commitment, emotional exhaustion, depersonalization with regard to students and colleagues, and personal accomplishment) in the context of a longitudinal study among 920 Dutch teachers. Following Lazarus and Folkman (1984), we expected that it would be possible to distinguish between two sets of outcome variables, namely strains (which would be affected by feelings of inequity, irrespective of the type of exchange relationship in which it was experienced), and withdrawal or coping variables (which would be linked to one type of exchange relationship in particular). Further, we examined

whether the expected cross-sectional effects could be replicated longitudinally. Finally, we examined whether (and if so, how) psychological withdrawal from an exchange relationship (in terms of depersonalization regarding one's students or colleagues, or a diminished commitment to the organization) would positively affect the balance between investments in and benefits gained from that relationship.

The results provided good support for the distinction among the three exchange relationships. Each of these relationships retained different patterns of effects on the outcome variables, both within and across occasions, showing that the theoretical distinctions among these relationships were warranted empirically. Further, the distinction between strain and withdrawal variables was confirmed as well. Whereas emotional exhaustion was affected by inequity experienced in all three types of exchange relationships, each of the three other outcome variables was linked to a specific type of exchange relationship (depersonalization regarding one's students — inequity regarding the relationship with one's students, depersonalization regarding one's colleagues — inequity regarding the relationship with one's colleagues, and personal accomplishment — inequity regarding the relationship with one's students). These results confirm and enhance the findings reported by *Schaufeli et al.* (1996).

Personal accomplishment — the third dimension of *Maslach and Jackson's* (1986) burnout measure — fitted the framework outlined above rather less well. Following *Schachter and Singer's* (1962) attribution-of-arousal theory, we proposed that the stress resulting from maintaining an inequitable exchange relationship with one's students (which was expected to be the potentially most stressful exchange relationship, cf. *Van Horn et al.*, 2001, Study 1) would lead teachers to infer that they perform inadequately. This reasoning was cross-sectionally confirmed by negative effects of inequity in the exchange relationship with one's students on personal accomplishment.

Within each cross-section, the expected effects between the three inequity variables and the outcome variables were fully confirmed. That is, the more inequity one perceived in a particular exchange relationship, the higher the likelihood that negative work outcomes would occur. However, this pattern of effects was not replicated longitudinally. Rather than to replicate the cross-sectional effects longitudinally (thus providing support for a causal interpretation of the effects of inequity on work outcomes), we either found effects that were not significantly different from zero, or effects that ran contrary to our expectations. For example, whereas the cross-sectional evidence showed that teachers who experienced much inequity in the relationship with their students had a high risk to become emotionally exhausted, the corresponding longitudinal effect was negative

— even though the corresponding underlying correlation coefficients were positive. Similar findings were obtained for other longitudinal effects.

Such findings are often interpreted as suppressor effects (*Snyder & Mangrum*, 1996). Although such effects are often considered as statistical artifacts that do not deserve much attention (cf. *Lee & Ashforth*, 1993), they are not necessarily void of meaning. These negative effects suggest that people have access to 'coping strategies' that allow them to handle the potentially harmful consequences of prolonged exposure to highly inequitable exchange relationships (cf. *Lerner*, 1984; *Whitely et al.*, 1995). Psychological withdrawal (in the form of diminished commitment to the organization, or depersonalization with regard to students or colleagues) can be considered as one such strategy (but see below); however, one may apply other strategies as well. For example, teachers who feel that they invest too much in and receive too little from a particular exchange relationship may engage in cognitive re-appraisal of these investments and benefits. At least one successful program for the treatment of burned-out workers is based on such a re-appraisal principle (*VanDierendonck, Buunk & Schaufeli*, 1998). Alternatively, people may choose to leave their organization; a change of environment may improve their work situation as well (but see *Taris, Bok, & Caljé*, 1998, who found that depressive workers who took on another job were on average less likely to improve their work situation longitudinally than those who stayed in the organization or non-depressed workers who found another job).

Coping with inequity: Psychological withdrawal. One final goal of the current study was to examine whether psychological withdrawal from disturbed exchange relationships (in the form of depersonalization with regard to one's colleagues and students, or a diminished organizational commitment) would result in a more equitable balance (cf. *Adams*, 1965). The results presented here show that this is not the case; rather than to restore the balance between investments and benefits, psychological withdrawal seemed to increase the disbalance. Post-hoc analyses revealed that time one psychological withdrawal did not only result in lower investments in a particular exchange relationship at time two (as would be expected), but in lower benefits gained from that relationship as well. The average correlation between the three psychological withdrawal variables and the investments in the corresponding exchange relationship was $-.26$, computed across all three relationships; the average correlation between the three withdrawal variables and the benefits gained from the corresponding relationship was $-.32$, all p 's $< .001$. Thus, lower investments were compensated by lower returns.

Equity theory provides an elegant interpretation of this finding. Exchange processes are per definition dyadic processes. One party's investments are often the other party's benefits, and vice versa. Thus, if one party decides to

lower their investments in a relationship, the other party will see their benefits gained from this relationship decrease. As both parties strive to a rewarding exchange relationship, this other party will decrease their investments in the relationship as well — which makes the relationship even less rewarding for the first party, and so on (cf. Bakker et al., 2000). If this reasoning is correct, it would seem that psychological withdrawal from an exchange relationship is a particularly effective way to destroy this relationship, and certainly not one that is to be included in a counseling program designed for employees experiencing high inequity in their exchange relationships. Indeed, this result questions the common practice of teaching medical students an attitude of ‘detached concern’ towards their patients (Lief & Fox, 1963), as this may well have counterproductive effects on the quality of the relationship between caregiver and recipient.

Limitations and directions for future research. Three important limitations of this study must be acknowledged. First, the current study was conducted among teachers. Although the findings were replicated across two statistically independent samples, replication across different occupations would have been more informative concerning the generalizability of the findings. Second, the study included only self-report measures, meaning that the correlations among the variables may have been inflated by common method variance, ‘halo’-effects, or the tendency of respondents to provide answers that are consistent with previous answers (e.g., Kasl, 1998). Although such processes cannot be precluded, their effects would seem less consequential for the longitudinal findings presented here. Finally, one important limitation of this study derives from the fact that the withdrawal behaviors included in this study represented a rather select set of actions. Individuals may have access to a more varied set of coping strategies, and in practice they may use strategies that are more successful in restoring a disturbed balance between investments in and returns from a relationship. Indeed, the psychological withdrawal variables included in this study would seem to represent the ‘passive’ pole of a continuum ranging from ‘passive’ to ‘active’ coping strategies. It would seem important to study the effects of other coping strategies in follow-up research.

Implications of the study. In spite of the limitations outlined above, we believe that this study presents interesting and important new insights in the relation among inequity, burnout, and psychological withdrawal behavior of employees. Contrary to earlier work, the general theoretical framework presented here allows for the deduction of hypotheses on the effects of inequity experienced in diverse types of exchange relationships on various sets of outcome variables. Although much work remains to be done (involving more and more diverse types of outcome variables, to be

studied in other occupational groups), the distinction between strains and coping behaviors seems potentially valuable for future research.

From a practical point of view it is important to note that psychological withdrawal from a disturbed exchange relationship is unsuccessful in restoring an equitable balance for this relationship. One in this respect possibly more successful strategy is cognitive re-appraisal of the investments in and benefits gained from a particular exchange relationship (Van Dierendonck et al., 1998). Furthermore, the results presented here suggest that burnout (or negative work outcomes in general) may result from a variety of inequitable exchange relationships, underlining that the work situation contains many possible sources of negative work outcomes. In order to prevent such undesirable outcomes, it may not be sufficient to improve only one aspect of the work situation if other problematic aspects are not simultaneously dealt with. For instance, we found that among teachers inequity in the relationship with the students had the strongest effects on burnout (i.e., exhaustion, depersonalization, and diminished personal accomplishment), while inequity in the relationship with the organization was a strong precursor of lowered organizational commitment (cf. Schaufeli et al., 1996, for similar results among nurses). Improving the exchange relationship with the students, therefore, may enhance teacher well-being, but will have little impact on teacher turnover. Thus, strain and withdrawal are two aspects of working life that reflect the outcomes of two different processes that should be dealt with accordingly: measures targeted to improve the first may have little effect on the second, and vice versa.

■ APPENDIX

CORRELATION MATRIX FOR THE VARIABLES IN SAMPLE A (ABOVE THE DIAGONAL;
N = 460) AND SAMPLE B (BELOW THE DIAGONAL; N = 460) FOR TIME 1 AND TIME 2

VARIABLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
TIME 2											TIME 2											
1. EE	—	.45	.33	-.33	-.41	.16	.24	.10	.06	.18	.27	.78	.37	.33	-.21	-.34	.22	.29	.09	.12	.25	.24
2. DPS	.41	—	.43	-.37	-.39	.15	.23	.06	.00	.09	.14	.35	.60	.41	-.31	-.34	.20	.26	.05	.12	.13	.10
3. DPC	.32	.33	—	-.22	-.48	.05	.05	.17	.09	.14	.12	.26	.43	.71	-.30	-.40	.15	.18	.13	.13	.08	.04
4. PA	-.36	-.32	-.25	—	.42	-.32	-.24	-.01	.07	-.02	-.03	-.24	-.35	-.24	.01	.36	-.22	-.16	.07	-.01	-.05	.01
5. COM	-.38	-.31	-.44	.41	—	-.16	-.12	-.19	-.16	-.31	-.27	-.30	-.40	-.46	.04	.75	-.16	-.21	-.04	-.15	-.25	-.20
6. EQS	.32	.32	.14	-.38	-.28	—	.59	.05	.00	.15	.12	.17	.15	.07	.10	-.13	.46	.37	-.02	.02	.07	.06
7. BALS	.28	.20	.07	-.29	-.20	.56	—	.00	.00	.09	.15	.20	.20	.06	-.02	-.11	.43	.45	-.03	.04	.09	.07
8. EQC	.12	.01	.20	.06	-.18	.10	.00	—	.61	.22	.17	.07	.09	.14	-.19	-.10	.10	.08	.29	.26	.16	.19
9. BALC	.12	.00	.19	.05	-.23	.02	.07	.57	—	.15	.11	.03	-.01	.00	-.24	-.05	.08	.12	.31	.30	.14	.20
10. EQM	.16	.06	.05	-.06	-.28	.22	.14	.25	.10	—	.64	.14	.06	.11	.32	-.23	.10	.10	.05	.06	.39	.33
11. BALM	.19	.05	.03	-.01	-.17	.13	.17	.19	.17	.64		.26	.08	.11	.62	-.16	.09	.14	.00	.03	.34	.43
TIME 1											TIME 1											
12. EE	.74	.32	.27	-.29	-.31	.24	.22	.09	.14	.14	.10	—	.36	.31	-.19	-.36	.27	.33	.12	.16	.28	.29
13. DPS	.39	.52	.33	-.36	-.26	.19	.13	-.04	.00	.05	.07	.41	—	.48	-.31	-.39	.22	.27	.06	.13	.14	.04
14. DPC	.29	.28	.65	-.20	-.36	.14	.07	.16	.13	.10	.08	.29	.34	—	-.27	-.48	.13	.17	.15	.18	.12	.07
15. PA	-.35	-.24	-.25	.68	.35	-.23	-.17	.02	.00	-.07	-.02	-.35	-.37	-.20	—	.41	-.31	-.24	-.01	-.04	-.02	.03
16. COM	-.33	-.27	-.33	.31	.74	-.25	-.21	-.16	-.19	-.24	-.18	-.37	-.24	-.36	.36	—	-.22	-.24	-.14	-.15	-.32	-.22
17. EQLS	.31	.15	.08	-.28	-.19	.45	.38	.01	-.01	.14	.12	.35	.17	.12	-.28	-.23	—	.64	.10	.10	.20	.14
18. BALS	.32	.18	.06	-.25	-.18	.42	.51	.01	.09	.13	.09	.35	.19	.08	-.25	-.19	.64	—	.07	.20	.19	.21
19. EQC	.08	.01	.15	-.03	-.15	.14	.11	.35	.45	.04	.07	.16	.02	.15	-.02	-.20	.14	.08	—	.68	.15	.14
20. BALC	.12	.04	.12	.00	-.11	.07	.12	.33	.45	.04	.09	.19	.01	.10	-.02	-.17	.07	.07	.70	—	.10	.13
21. EQM	.18	.03	.07	-.05	-.28	.12	.14	.17	.19	.44	.42	.25	.03	.03	-.08	-.30	.21	.17	.24	.16	—	.63
22. BALM	.18	.03	.04	.00	-.23	.08	.15	.12	.18	.44	.48	.22	.05	.02	.00	-.26	.09	.12	.09	.09	.71	—

Note. Correlations of .09 and higher are significant at $p < .05$. EE = emotional exhaustion; PA = personal accomplishment; COM = organizational commitment; DPP = depersonalization students; DPC = depersonalization colleagues; EQS = inequity relationship students; BALS = imbalance relationship students; EQC = inequity relationship colleagues; BALC = imbalance relationship colleagues; eqm = inequity relationship school management; BALM = imbalance relationship school management.

REFERENCES

- Adams, J.S. (1965).
Inequity in social exchange. In L. Berkowitz (Ed.),
Advances in Experimental Social Psychology
(Vol. 2, pp. 267-299).
New York: Academic Press.
- Bakker, A.B., Schaufeli, W.B., Sixma, H.J., Bosveld, W.,
& Van Dierendonck, D. (2000).
Patient demands, lack of reciprocity, and burnout:
A five-year longitudinal study among general practitioners.
Journal of Organizational Behavior, 21, 425-441.
- Bentler, P.M. (1990).
Comparative fit indexes in structural models.
Psychological Bulletin, 107, 238-246.
- Bentler, P.M., & Bonett, D.G. (1980).
Significance tests and goodness of fit in the analysis
of covariance structures.
Psychological Bulletin, 88, 588-606.
- Brill, P.B. (1984).
The need for an operational definition of burnout.
Family and Community Health, 6, 12-24.
- Buunk, B.P., & Hoorens, V. (1992).
Social support and stress:
The role of social comparison and social exchange processes.
British Journal of Clinical Psychology, 31, 445-457.
- Buunk, B.P., & Schaufeli, W.B. (1993).
Professional burnout:
A perspective from social comparison theory.
In W.B. Schaufeli, C. Maslach, & T. Marek (Eds.),
*Professional burnout: Recent developments in
theory and research* (pp. 53-69).
New York: Taylor & Francis.
- Buunk, B.P., & Schaufeli, W.B. (1999).
Reciprocity in interpersonal relationships:
An evolutionary perspective on its importance
for health and well-being.
In W. Stroebe & M. Hewstone (Eds.),
European Review of Social Psychology
(Vol. 10, pp. 259-291).
Chichester: Wiley.

- Chadwick-Jones, J.K. (1976).
Social exchange theory:
Its structure and influence in social psychology.
London: Academic Press.
- Cordes, C., & Dougherty, T. (1993).
A review and integration of research on job burnout.
Academy of Management Review, 18, 621-656.
- Cordes, C.L., Dougherty, T.W., & Blum, M. (1997).
Patterns of burnout among managers and professionals:
A comparison of models.
Journal of Organizational Behavior, 18, 685-701.
- Cropanzano, R., & Greenberg, J. (1997).
Progress in organizational justice:
Tunneling through the maze.
In C.L. Cooper & I.T. Robertson (Eds.),
*International Review of Industrial and
Organizational Psychology* (Vol. 12, pp. 317-372).
Chichester: Wiley.
- Cudeck, R., & Browne, M.W. (1983).
Cross-validation of covariance structures.
Multivariate Behavioral Research, 18, 147-167.
- Dollard, M.F., Winefield, H.R., Winefield, A.H., & De Jonge, J. (2000).
Psychosocial job strain and productivity in human service workers:
A test of the demand-control-support model.
Journal of Occupational & Organizational Psychology, 73, 501-510.
- Feij, J.A., Whitely, W.T., Peiró, J.M., & Taris, T.W. (1995).
The development of career-enhancing strategies and
content innovation: A longitudinal study of new workers.
Journal of Vocational Behavior, 46, 231-256.
- Geurts, S.A., Buunk, B.P., & Schaufeli, W.B. (1994a).
Health complaints, social comparisons and absenteeism.
Work & Stress, 8, 220-234.
- Geurts, S.A., Buunk, B.P., & Schaufeli, W.B. (1994b).
Social comparisons and absenteeism:
A structural modeling approach.
Journal of Applied Social Psychology, 24, 1871-1890.
- Geurts, S., Schaufeli, W., & De Jonge, J. (1998).
Burnout and intention to leave among mental health-care
professionals: A social psychological approach.
Journal of Social & Clinical Psychology, 17, 341-362.
- Geurts, S.A., Schaufeli, W.B., & Rutte, C.G. (1999).
Absenteeism, turnover intention, and inequity in the employment
relationship.
Work & Stress, 13, 253-267.

- Goffin, R.D. (1993).
A comparison of two new indices for
the assessment of fit of structural equation models.
Multivariate Behavioral Research, 28, 205-214.
- Golembiewski, R.T., Billingsley, K., & Yeager, S. (1976).
Measuring change and persistency in human affairs:
Types of change generated by OD designs.
Journal of Applied Behavioural Science, 12, 133-157.
- Golembiewski, R.T., & Munzenrider, R.F. (1988).
Phases of burnout:
Developments in concepts and applications.
New York: Praeger.
- Greenberg, J. (1990).
Employee theft as a reaction to underpayment inequity:
The hidden cost of pay cuts.
Journal of Applied Psychology, 75, 561-568.
- Hatfield, P., & Sprecher, S. (1984).
Equity theory and behavior in organizations.
In S.B. Bacharach & E.J. Lawler (Eds.),
Research in sociology of organization (vol.3, pp. 95-124).
Greenwich, CT: JAI Press.
- Hatfield, E., Traupmann, J., Sprecher, S., & Hay, J. (1985).
Equity and intimate relations: Recent research.
In W. Ickes (Ed.),
Compatible and incompatible relationships (pp. 309-321).
Oxford: Pergamon Press.
- Horn, J.E. van & Schaufeli, (1998).
Maslach Burnout Inventory:
The Dutch Educators Survey MBI-NL-ES.
Unpublished manuscript.
Utrecht University: Department of Social and Organizational Psychology.
- Horn, J.E. van, Schaufeli, W.B., & Enzmann, D. (1999).
Teacher burnout and lack of reciprocity.
Basic & Applied Social Psychology, 29, 91-108.
- Horn, J.E. van, Schaufeli, W.B., & Taris, T.W. (2001).
Lack of reciprocity among Dutch teachers:
Validation of reciprocity indices and their relation
to stress and well-being.
Work & Stress, 15, 191-213.
- Iverson, R.D., & Roy, P. (1994).
A causal model of behavioral commitment:
Evidence from a study of Australian blue-collar employees.
Journal of Management, 20, 15-41.

- Jöreskog, K.G., & Sörbom, D. (1993).
LISREL-8 (computer manual).
Chicago: Scientific Software.
- Kahn, R., & Byosiore, P. (1992).
Stress in organizations.
In M. Dunnette and L. Hough (Eds.),
Handbook of Industrial and Organizational Psychology
(2nd ed), Vol. 3, pp. 571-650.
Palo Alto (CA): Consulting Psychologists Press.
- Kalimo, R., Taris, T.W., & Schaufeli, W.B. (2001).
How do past and anticipated organizational changes affect
survivors' well-being? A social exchange perspective.
Manuscript currently under editorial consideration.
- Kasl, S.V. (1998).
Measuring job stressors and studying the
health impact of the environment:
An epidemiologic commentary.
Journal of Occupational Health Psychology, 3, 390-401.
- Lazarus, R.L., & Folkman, S. (1984).
Stress, appraisal, and coping.
New York: Springer.
- Lee, R.T., & Ashforth, B.E. (1993).
A longitudinal study of burnout among
supervisors and managers: Comparisons
between the Leiter and Maslach (1988) and
Golembiewski et al. (1986) models.
Organizational Behavior & Human Decision Processes,
54, 369-398.
- Lee, R.T., & Ashforth, B.E. (1996).
A meta-analytic examination of the correlates
of the three dimensions of job burnout.
Journal of Applied Psychology, 81, 123-133.
- Leiter, M., & Maslach, C. (1988).
The impact of interpersonal environment on
burnout and organizational commitment.
Journal of Organizational Behavior, 9, 297-308.
- Lerner, R.M. (1984).
On the nature of human plasticity.
New York: Cambridge University Press.
- Lief, H.I., & Fox, R.C. (1963).
Training for "detached concern" in medical students.
In H.I. Lief, V.P. Lief, & N.R. Lief (Eds.),
The psychological basis of medical practice (pp. 12-35).
New York: Harper & Row.

- MacCallum, R.C., Roznowski, M., & Necowitz, L.B. (1992).
Model modification In covariance structure analysis:
The problem of capitalization on chance.
Psychological Bulletin, 111, 490-504.
- Marsh, H.W., Balla, J.R., & McDonald, R.P. (1988).
Goodness-of-fit indexes in confirmatory factor analysis:
The effect of sample size.
Psychological Bulletin, 103, 391-410.
- Maslach, C. (1982).
Burnout: A social psychological analysis.
In J.W. Jones (Ed.),
The burnout syndrome:
Current research, theory, interventions.
Park Ridge: London House.
- Maslach, C., (1993).
Burnout: A multi-dimensional perspective.
In W.B. Schaufeli, C. Maslach, & T. Marek (Eds.),
Professional burnout: Recent developments in
theory and research (pp. 19-32).
New York: Taylor & Francis.
- Maslach, C., & Jackson, S.E. (1986).
MBI: The Maslach Burnout Inventory:
Manual research edition.
Palo Alto: Consulting Psychologists Press.
- Mathieu, J.E., & Zajac, D.M. (1990).
A review and meta-analysis of the antecedents, correlates,
and consequences of organizational commitment.
Psychological Bulletin, 108, 171-194.
- Mowday, R.T., Steers, R.M., & Porter, L.W. (1979).
The measurement of organizational commitment.
Journal of Vocational Behavior, 14, 224-247.
- O'Driscoll, M.P., & Cooper, C.L. (1996).
Sources and management of excessive job stress and burnout.
In P.B. Warr (Ed.), *Psychology at work* (4th ed., pp. 188-223).
Harmondsworth: Penguin.
- Perry, E.S. (1993).
Effects of inequity on job satisfaction and self-evaluation
in a national sample of African-American workers.
Journal of Social Psychology, 133, 565-573.
- Pritchard, R.D. (1969).
Equity theory: A review and critique.
Organizational Behavior & Human Performance, 4, 176-211.

- Robinson, S.L., & Rousseau, D.M. (1994).
Violating the psychological contract:
Not the exception but the norm.
Journal of Organizational Behavior, 15, 245-259.
- Rousseau, D.M., & Parkes, J.M. (1993).
The contracts of individuals and organizations.
In L.L. Cummings & B.M. Staw (Eds.),
Research in Organizational Behavior (vol. 15, pp. 1-43).
Greenwich, CT: JAI Press.
- Roter, D.L., & Hall, J.A. (1991).
Health education theory:
An application to the process of
patient-provider communication.
Health Education Research, 6, 185-193.
- Schachter, S., & Singer, J. (1962).
Cognitive, social and physiological
determinants of emotional state.
Psychological Review, 69, 379-399.
- Schaufeli, W.B., Daamen, J., & Van Mierlo, H. (1994).
Burnout among Dutch teachers: An MBI-validity study.
Educational & Psychological Measurement, 54, 803-812.
- Schaufeli, W.B., Van Dierendonck, D., & Van Gorp, K. (1996).
Burnout and reciprocity:
Towards a dual-level social exchange model.
Work & Stress, 10, 224-237.
- Shapiro, S.L., Trevino, L.K., & Victor, B. (1995).
Correlates of employee theft:
A multidimensional justice perspective.
International Journal of Conflict Management, 6, 404-414.
- Shinn, M., Rosario, M., Morch, H., & Chestnut, D. (1984).
Coping with job stress and burnout in the human services.
Journal of Personality & Social Psychology, 46, 864-876.
- Siegrist, J. (1996).
Adverse health effects of high effort/low reward conditions.
Journal of Occupational Health Psychology, 1, 27-41.
- Snyder, D.K., & Mangrum, L.B. (1996).
Approaches to prediction:
Correlation regression, and discriminant analysis.
In D.H. Sprenkle & S.M. Moon (Eds.),
Research Methods in Family Therapy
(pp. 307-335).
New York: Guildford Press.

- Taris, T.W., Bok, I.A., & Caljé, D.G. (1998).
On the relation among job characteristics and depression:
Evidence for reciprocal effects?
International Journal of Stress Management, 5(3), 157-167.
- Taris, T.W., Bok, I.A., & Meijer, Z.Y. (1998).
On assessing stability and change of psychometric
properties of multi-item concepts across different
situations: A general approach.
Journal of Psychology, 132, 301-316.
- Taris, T.W., Peeters, M.C.W., Le Blanc, P.M., Schreurs, P.J.G.,
& Schaufeli, W.B. (in press).
From inequity to burnout: The role of job stress.
Journal of Occupational Health Psychology.
- Taris, T.W., Schreurs, P.J.G., & Schaufeli, W.B. (2000).
Construct validity of the Maslach Burnout Inventory-
General Survey: A two-sample examination of its factor
structure and correlates.
Work & Stress, 13, 223-237.
- Taris, T.W., Schreurs, P.J.G., & Van Silfhout, I.J. (in press).
Job stress, job strain, and psychological withdrawal
among Dutch university staff: Towards a dual-process
model for the effects of occupational stress.
Work & Stress.
- VanDierendonck, D., Schaufeli, W.B., & Sixma, H.J. (1994).
Burnout among general practitioners:
A perspective from equity theory.
Journal of Social & Clinical Psychology, 13, 86-100.
- VanDierendonck, D., Schaufeli, W.B., & Buunk, B.P. (1996).
Inequity among human service professionals:
Measurement and relation to burnout.
Basic & Applied Social Psychology, 18, 429-451.
- VanDierendonck, D., Schaufeli, W.B., & Buunk, B.P. (1998).
The evaluation of an individual burnout intervention program:
The role of inequity and social support.
Journal of Applied Psychology, 83, 392-407.
- VanYperen, N.W. (1998).
Informational support, equity and burnout:
The moderating effect of self-efficacy.
Journal of Occupational & Organizational Psychology, 71, 29-33.
- VanYperen, N.W., Hagedoorn, M., & Geurts, S.A.E. (1996).
Intent to leave and absenteeism as reactions to perceived inequity:
The role of psychological and social constraints.
Journal of Occupational & Organizational Psychology 69, 367-372.

- Walster, F., Walster, G.W., & Berscheid, E. (1978).
Equity: Theory and research.
Boston, MA: Allyn & Bacon.

I
2
3
4
5
6
EPILOGUE

EPILOGUE

Burnout is a metaphor that describes a particular syndrome which is typically found in human service professions, such as teaching, and is assumed to be linked to the emotional strain of working frequently and intensively with other people. The burnout syndrome is characterized by feelings of emotional exhaustion, depersonalization, and reduced personal accomplishment. In this thesis, burnout was studied among Dutch teachers employed in primary, secondary, vocational, and special education schools. Although burnout among teachers has been studied quite extensively for years, few of these studies are theory driven. In this thesis, burnout has been studied using the theoretical frame of equity theory (Adams, 1963; 1965). Equity theory assumes that people who are engaged in either an intimate or a work relationship, invest in (investments) and gain from (outcomes) that relationship. A disturbed balance of investments and outcomes (lack of reciprocity) is presumed to lead to both negative emotions and a tendency to restore the inequitable balance. Logically speaking, the latter can only be achieved by either increasing one's outputs – which usually is very difficult, if not impossible – or by decreasing one's investments. Typically, burnout is a syndrome that combines emotional exhaustion with mental distancing and thus reflects both key consequences of a lack of reciprocity.

In this concluding chapter, the main results of the studies described in this thesis are discussed by means of the three sets of research questions formulated in the introduction. Each set of questions is introduced at the beginning of each paragraph. This final chapter closes with a few considerations regarding future research and, in addition, elaborates on several practical implications.

On the measurement of burnout among Dutch teachers

The three-dimensional structure of burnout consisting of emotional exhaustion, depersonalisation and personal accomplishment has been confirmed in previous studies using the original American Maslach Burnout Inventory for Educators (MBI-ES). In The Netherlands a Dutch equivalent, MBI-NL-ES, has been developed and validated in the present thesis. The studies described in chapters 1 through 3 focused on the construct of burnout and its measurement. Specific research questions were the following:

Research question 1

- A. Is the basic three-dimensional burnout construct (i.e., tapping emotional exhaustion, depersonalization, and reduced personal accomplishment) adequately represented with the Dutch survey for Educators (MBI-NL-ES)?
- B. How does burnout relate to other aspects of teacher well-being, such as organizational commitment, aspiration, and social functioning?
- C. Do burnout scores among Canadian teachers differ from burnout scores among Dutch teachers, regarding various demographic (age and gender) and work-related factors (type of school, teaching experience, number of hours employed)?

In chapter 1, the psychometric qualities of the Dutch version of the Maslach Burnout Inventory Educators survey, the MBI-NL-ES, were examined (research question 1a). In general, results on the validity and reliability of the MBI-NL-ES match those found for the original American version (MBI-ES, Maslach & Jackson, 1986, 1996), implying that the MBI-NL-ES is a valid and reliable instrument to measure burnout among Dutch teachers. In several studies (see Enzman, Schaufeli, & Girault, 1995) as well as in the studies presented in this thesis, depersonalisation proved to be the least reliable subscale. Hence, two items were added to this subscale. As a result, the internal consistency improved to a more substantial level.

Research performed in this thesis on the construct validity of burnout showed that the basic three-dimensional burnout construct consisting of emotional exhaustion, depersonalization, and reduced personal accomplishment, is adequately represented with the Dutch survey for Educators (MBI-NL-ES), not only in the total sample of teachers, but also in the sub samples of teachers from different school types (i.e., primary, secondary, vocational, and special education). Moreover, results on the predictive validity of the MBI-NL-ES are also quite satisfactory. Longitudinal data showed that healthy teachers with average and high scores on emotional exhaustion and depersonalization were at greater risk to burnout 12 months later.

As for the specificity of burnout, results from our study show that burnout can be adequately discriminated from work-related stressors such as time pressure, students' misbehaviour, unsupportive colleagues, and related aspects of well-being such as depression. However, in agreement with findings from previous studies on the specificity of the core dimension of burnout, emotional exhaustion (e.g., Schaufeli & VanDierendonck, 1993; Schaufeli, Daamen, & Van Mierlo, 1994), results presented in this thesis

underline the fact that emotional exhaustion appeared to be the least specific dimension. That is, relatively high correlations were found between emotional exhaustion and depression, dissatisfaction, negative mood, and non-specific physical and mental health complaints. In contrast, depersonalization and reduced personal accomplishment were found to be separate dimensions in the range of these aspects of well-being. It can be argued that negative affect, such as emotional exhaustion, reflects the perceptions of, and the interpretations about, a person's well-being more than depersonalization and personal accomplishment, which are considered attitudinal or cognitive components.

Burnout and its relation to other aspects of well-being were examined in our study described in chapter 3. In particular, a multi-dimensional model of teacher well-being has been developed in which burnout is related to other aspects of well-being (research question 1b). The model consisted of five dimensions: affective, professional, social (Warr, 1987; Ryff, 1989), cognitive, and psychosomatic well-being. Two conclusions were drawn from this study: first, our multi-dimensional approach to measuring teacher well-being proved to be more adequate and resulted in a better fit to the data than the traditional uni-dimensional model. Second, results indicated that, in particular, affective well-being (affective dimension), emotional exhaustion (affective dimension), and cognitive weariness (cognitive dimension) proved to be the most central concepts of teacher well-being. This finding underlines the notion of other researchers (Warr, 1987; Maslach, 1993) that well-being is especially reflected in the emotional and affective state of a person.

For a long time, research on stress and burnout among teachers has received considerable attention in mainly North-American countries. Burnout was found to be related to demographic and work-related variables such as age and experience in teaching (Russell, Altmaier, & Velzen, 1987): younger and less experienced teachers were found to be more burned out than older teachers and more experienced teachers. In contrast to findings from North-American studies, burnout research in The Netherlands showed that, for instance, older teachers were more burned out than their younger colleagues. Despite these cross-cultural differences, no direct comparison studies were carried out related to this issue.

In this thesis a study was carried out (chapter 2) in which burnout scores are compared between Canadian and Dutch teachers (research question 1c). Results showed that, overall, Canadian teachers experienced more burnout than Dutch teachers. They, in particular, reported higher scores on emotional exhaustion and depersonalisation than Dutch teachers. Although, no valid explanations have been proposed for these differences, differences in

North-American burnout reference data cannot be used to assess burnout levels among Dutch teachers. Hence, a Dutch reference burnout database is needed to adequately assess burnout levels among Dutch teachers.

In answering our first research question, it is concluded that:

- A. the basic three-dimensional construct of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment) is adequately measured with the MBI-NL-ES. Moreover, the reliability of the depersonalization scale has been improved by adding two items.
- B. well-being among teachers is multi-faceted and in particular expressed by affective well-being, lack of emotional exhaustion, and lack of cognitive weariness.
- C. since cross-cultural differences were found between Canadian and Dutch teachers, a Dutch burnout reference database is necessary.

On the measurement of reciprocity

The value of social exchange processes has been demonstrated in a variety of settings. However, results generally are inconclusive as to which operationalisation of reciprocity can be used best. Moreover, few studies validated two or more reciprocity measures in their study and so far no standardized measurement of reciprocity has been suggested. Hence, in this thesis the following research questions were formulated regarding this issue.

Research question 2

- A. How are the specific, global and self-rated measures of reciprocity interrelated?
- B. Which measure (specific, global or self-rated index) can be used best to study social exchange processes among teachers?

The study described in chapter 4 validated specific, global and self-rated reciprocity indices (research question 2a). To construct a specific reciprocity measure, teachers were asked to sum up their most important investments in, and outcomes from, the exchange relationship with students, colleagues, and the school. The investments and outcomes teachers mentioned were used to develop multi-item scales of investments and outcomes. For each exchange relationship a specific ratio of these specific investments and outcomes was calculated (specific reciprocity index). The global reciprocity index consisted of a score resulting from the ratio between a single global investment-item and a single global outcome-item. In the self-rated index, the ratio between investments and outcomes was integrated in one single item.

In the next step of our study, the intercorrelation between the specific, global and self-rated reciprocity indices was examined. At each exchange level the same pattern emerged: the more global the measurement, the lower the intercorrelation with the specific index. It can be speculated that, when teachers are asked to evaluate their investments in, and outcomes from, a particular relationship at a specific level, other cognitive processes are initiated than when they are asked to make an evaluation at a more global level. The process by which teachers evaluate their investments and outcomes follows a bottom-up procedure: teachers seem to start with a specific assessment of investments and outcomes, followed by a global evaluation and ending in an overall evaluation.

This implies that the self-rated index, according to which teachers are asked to implicitly evaluate the balance between what they invest in a relationship and what they gain from it, seems to be the best way to measure reciprocity. For several other reasons, the self-rated index would seem preferable.

First, compared to the specific and global indices, the self-rated reciprocity index accounted for the highest percentage of the variance in the work related stressors experienced at one particular exchange level (i.e., students, colleagues or school). Using the self-rated index, the construct of reciprocity can be considered valid in that, lack of reciprocity experienced at one particular level does not contribute to work-related stress at any other level. Stated differently, teachers who felt under-benefited by their students exclusively experienced more stress in their interactions with students. Similarly, under-benefited teachers in the exchange relationship with colleagues experienced more stress due to tensions in that relationship, and teachers who felt under-benefited in their relationship with the school experienced relatively more stress due to the interaction with the school.

Second, reactions to lack of reciprocity, such as burnout and organizational commitment, are more strongly related to the self-rated index, implying that this index is more appropriate to explain the individual variation in reactions to lack of reciprocity.

Third, the self-rated index in which teachers have to make their own evaluation between investments and outcomes using one single question probably fits better to our assumption that teachers use internal standards to make up the investments-outcomes balance as opposed to social comparisons with another person.

In answering our second research question, it is concluded that:

- A. the interrelation between the specific reciprocity index and more global assessments of reciprocity (i.e., global

and self-rated indices) is relatively weak, suggesting that perhaps this specific way of measuring reciprocity triggers other cognitive processes than global indices.

- B. the self-rated index seems to be the best way to measure reciprocity, because it relates to other stressors in each exchange relationship as expected, and it relates more strongly to several health aspects than the other reciprocity indices.

The relevance of burnout and reciprocity

The relevance of social exchange processes in the development of burnout has been demonstrated in several studies (*e.g.*, Buunk & Schaufeli, 1993). In this thesis, social exchange theory has also been examined in relation to burnout among teachers according to the following research question.

Research question 3

- A. Is there any evidence to assume that students, colleagues and the school are relevant exchange parties to teachers, with the relationship with students being the most salient and the relationship with the school the least?
- B. Are social exchange processes in the relationships of teachers with their students, colleagues and the school related to teacher burnout?
- C. What is the causal relation between lack of reciprocity and burnout among teachers?

In this thesis, students, colleagues, and the school were considered relevant partners in the social exchange relationships teachers maintain at work. Related to research question 3a, we found in chapter 4 that teachers reported on a higher number of investments and outcomes in their exchange relationship with students, followed by the relationship with colleagues, and finally with the school. In this respect, the relationship with students can be regarded as the most salient and thus the most personal. In previous studies among teachers (Rosenholtz & Simpson, 1990) it is noted that, nowadays, teaching involves more than just transferring knowledge; it also implies a frequent and intense social-psychological involvement with students' lives. From our study, results furthermore indicated that the exchange relationship with colleagues could be considered relatively less personal than the relationship with students, and the relationship with the school the least personal.

Two studies (chapters 4 and 5) were carried out focusing on the relation between lack of reciprocity and burnout at three exchange levels: students,

colleagues and the school. In both studies, lack of reciprocity was significantly related to burnout: teachers who invested more than they got back in return reported more inequitable feelings than teachers whose ratio of investments and outcomes were in balance (research question 3b). Perceived inequity resulted in particular from a situation in which teachers estimated their investments to be higher than their benefits. From other studies, it is also known that situations in which people feel over-benefited (*i.e.*, when outcomes exceed investments) are rare. Moreover, in the present thesis in which burnout is expected to be related to inequitable feelings, it seems logical to assume that situations in which one invests more than one receives enhance feelings of exhaustion, and that situations in which one receives more than one invests enhance feelings of guilt.

Although lack of reciprocity was found to be significantly related to burnout, the expected relation, that is, that lack of reciprocity in the relationship with students would be most strongly related to burnout, followed by a less strong relation at the level of colleagues, and the least strong at school level, was only partly supported. In the first study (chapter 4) it was indeed found that in the more personal exchange relationships with students, under-benefited teachers had higher scores on burnout than teachers who felt under-benefited by colleagues, or the school. In the second study (chapter 5), results showed the opposite: the relation between lack of reciprocity and burnout was most strongly present in the least personal exchange relationship with the school. No significant relation was found between lack of reciprocity at students level and burnout.

It is difficult to give a clear and unambiguous explanation for these differences. One possible explanation draws on the nature of these two samples. The first study, in which burnout is more strongly related to inequity experienced in the exchange relationship with students, included a sample of teachers exclusively from secondary schools, whereas the second study consisted of a sample of teachers from elementary and secondary schools. Students from secondary schools are said to be more difficult to motivate than students from elementary schools, because they are less interested (Gold & Grant, 1993). Possibly, the relation between burnout and lack of reciprocity in interactions with students is stronger among secondary school teachers than among, for instance, elementary school teachers.

It is generally assumed that inequitable feelings will motivate people to restore the disturbed balance between their investments and outcomes (Adams, 1965; Walster, Walster, & Berscheid, 1978). The causal relation between lack of reciprocity and burnout was studied (research question 3c) in a longitudinal study described in chapter 6. More specifically, we have

attempted to show that feelings of lack of reciprocity produce affective reactions such as emotional exhaustion (strain) and psychological withdrawal strategies (coping) such as diminished organizational commitment and depersonalization toward students and colleagues. These reactions are assumed to be aimed at restoring inequitable feelings. Affective reactions were expected to emerge, irrespective of the exchange relationship inducing the inequitable feelings (generic reactions), whereas psychological withdrawal strategies were assumed to be specifically linked to one type of exchange relationship (i.e., students, colleagues or school) (specific withdrawal reactions). For instance, when teachers experience lack of reciprocity in their relationship with students, they are likely to depersonalize their students and colleagues. Results supported our assumptions that affective reactions to lack of reciprocity are generic and that withdrawal reactions are specific.

However, the expected longitudinal causal direction that inequity in any exchange relationship leads to emotional strain was not found. In fact, teachers showed lower levels of emotional exhaustion when lack of reciprocity was experienced. The same accounted for the withdrawal strategies: teachers who experienced lack of reciprocity did not feel more depersonalized. Moreover, in contrast to what might be expected, namely, that generic and specific psychological withdrawal reactions lead to a restoration of the disturbed balance: these reactions do not restore equity; rather, they increase the inequitable feelings. Posthoc analyses show that attempts to restore lack of reciprocity by lowering investments resulted in even lower outcomes, which in turn disturbed the imbalance even more. Thus, it seems that attempts to restore an inequitable exchange of investments and outcomes by decreasing the investments works counterproductive. This is consistent with findings from a study among general practitioners (Bakker, Schaufeli, Sixma, & Bosveld, & VanDierendonck, 2000) in which it demonstrated that the decision from one party to lower the investments motivates the other party to do the same, since both parties strive for a balanced exchange of investments and outcomes.

In answering our third research question, it is concluded that:

- A. social exchange processes are relevant in the exchange relationships teachers maintain with their students, colleagues, and the school. Moreover, the relationship with students can be regarded as the most salient in this respect, the relationship with the school the least salient and the relationship with colleagues taking an intermediate position.
- B. although results from our two studies on the relation between lack of reciprocity and burnout among teachers

proved to be inconsistent within each exchange relationship, in general, burnout levels tend to be higher when lack of reciprocity is experienced.

- C. we have found no support for our assumption that inequitable feelings will be reduced when teachers lower their investments. In fact, inequitable feelings seem to increase when investments are decreased.

Limitations and directions for future research

The findings presented in this thesis contributed not only to the validation of burnout and reciprocity measures, but they also reinforced our notion that a disturbed balance of investments and outcomes (i.e., lack of reciprocity) relates significantly to burnout. Furthermore, more insight was gained into the affective and psychological withdrawal reactions to feelings of lack of reciprocity. However, several limitations should be mentioned concerning the results from the studies presented in this thesis.

Measurement issues. First, our results relied exclusively on self-report measures, implying that higher correlations among variables could result from common method variance or from respondents' tendency to provide answers that are consistent with previous answers. Therefore, future research should also include more objective measures to rule out problems such as method bias.

Second, in general, the Dutch version of the Maslach Burnout Inventory, MBI-NL-ES, proved to be a valid and reliable instrument to measure burnout among teachers. However, future research needs to be done concerning the following issues. In previous studies, the depersonalization scale has always been considered the least reliable scale (Enzmann, Schaufeli, & Girault, 1995). In this thesis, we improved the internal consistency of the depersonalization scale by adding two items. Further research needs to be done however, regarding the reliability and validity of the extended depersonalization subscale in other than the teaching professions. The predictive validity of the MBI-NL-ES was investigated using teachers who were healthy at first and on sick leave 12 months later. Results showed that teachers with average and high scores on emotional exhaustion significantly were at greater risk to burnout. It should be noted, however, that additional research on the predictive validity of the MBI-NL-ES is needed, since our study included only 45 teachers that were ill.

Results in this thesis showed that among teachers who were still at work the interrelation between emotional exhaustion and depersonalization is less strong than among teachers on sick leave. This suggests that the structure

of the syndrome might be slightly different in the group of teachers on sick leave. It is possible that feelings of depersonalization among teachers on sick leave are reduced because they are no longer confronted with the factors that made them distance themselves. Hence, future research is needed regarding the structure of burnout among teachers who are on sick leave.

Theoretical issues. In agreement with previous findings in other professions such as general practitioners and nurses, results presented in this thesis demonstrate that social exchange processes are indeed a fruitful approach to studying burnout in a teacher setting. However, a few remarks should be taken into consideration.

First, burnout and reciprocity are both metaphorical constructs implying that they may be spuriously correlated. Lack of reciprocity is often explained in terms of “giving too much and receiving too little”, and burnout is often explained in terms of a battery that has become exhausted. The only way for a battery to become exhausted, of course, is by giving energy to others while not being recharged (i.e., receiving nothing in return). Hence, conceptually, both constructs are likely to be strongly interrelated. However, teachers participating in our research were not informed about the potential overlap between the two constructs, and it seems somewhat far-fetched that the participants in our surveys were aware of this overlap while completing our questionnaires.

Second, in our longitudinal study described in chapter 6, it was concluded that generic and specific psychological reactions (e.g., emotional exhaustion and withdrawal strategies) to lack of reciprocity did not result in a restoration of the experienced inequity, and that in fact feelings of inequity were increased. Teachers may use other – perhaps more successful - withdrawal strategies to restore a disturbed balance between investments in, and returns from, a relationship. Since the ‘psychological withdrawal’ variables that were included in this study represent a more ‘passive’ pole of a continuum ranging from ‘passive’ to ‘active’ coping strategies, it would seem important to study the effects of other more active coping strategies such as leaving the organization, in follow-up research.

Practical implications

Burnout. In the introduction, reference was made to the increasing number of disabled teachers. Mental health complaints, of which burnout is assumed to take a central position, are diagnosed more frequently than any other health complaints among teachers. It was also mentioned in the introduction that in the Netherlands an annual shortage is expected in the near future of

8500 primary school and 5500 secondary school teachers. This development calls for some serious action, in particular aimed at preventing burnout among teachers.

In this thesis, two contributions were made. First, a valid and reliable tool to measure burnout among Dutch teachers is developed and, second, our view has been expanded on burnout as it relates to other aspects of well-being. In relation to the first, it has been demonstrated in this thesis that the Dutch version of the burnout survey for educators (MBI-NL-ES) is a valid and adequate way to measure burnout. In addition, the instrument has been improved by developing a more reliable depersonalization scale. Moreover, levels of individual and group scores can be compared to normative scores from teachers on sick-leave and teachers who are working, and to other normative data including gender, age, type of school, teaching experience and the number of hours employed.

Based on the results presented in this thesis, the MBI-NL-ES has been incorporated in a general periodic health-screening instrument for teachers (PAGO, Periodiek ArbeidsGezondheidskundig Onderzoek, Caljé, Schaufeli, & Schreurs, 1998; Caljé, Schreurs, Schaufeli, Taris, & Van Workum, 1998). The model, which is validated in this thesis, contains a differentiated profile of various specific positive and negative dimensions of occupational well-being, by which more handles for developing practical interventions are offered. That is, multi-dimensional approaches allow a more precise assessment of - and therefore intervention in - a wide range of aspects of a person’s (lack of) well-being. Although the PAGO-instrument has only recently become available as a diagnostic instrument, results on the extent to which this tool can be adequately used for both individual as well as group diagnostic purposes are promising.

Reciprocity. From a practical point of view, it is important to note that psychological withdrawal from a disturbed exchange relationship does not contribute to the restoration of the equitable balance of that relationship. A perhaps more successful strategy in this respect is cognitive re-appraisal of the investments in and benefits gained from a particular exchange relationship (Van Dierendonck et al., 1998). Furthermore, the results presented here suggest that burnout (or negative work outcomes in general) may result from a variety of inequitable exchange relationships, underlining that the work situation contains many possible sources of negative work outcomes.

In order to prevent such undesirable outcomes, it may not be sufficient to improve only one aspect of the work situation if other problematic aspects are not dealt with simultaneously. For instance, we found that among teachers, inequity in the relationship with the students had the strongest

effects on burnout (i.e., exhaustion, depersonalization, and diminished personal accomplishment), whereas inequity in the relationship with the organization was a strong precursor of lowered organizational commitment (see *Schaufeli et al.*, 1996, for similar results among nurses). Therefore, improving the exchange relationship with the students may enhance teacher well-being, but it will have little impact on teacher turnover. Thus, strain and withdrawal are two aspects of working life that reflect the outcomes of two different processes that should be dealt with accordingly: measures targeted to improve the first may have little effect on the second, and vice versa.

In conclusion, the present series of studies has extended and enhanced previous work on burnout among teachers in at least three respects. First, by developing a valid and reliable Dutch version of the Maslach Burnout Inventory for teachers, it is now possible to examine the development of burnout among teachers more systematically. Second, we have shown that lack of reciprocity can best be measured using the self-rated index. Third, in this thesis it is revealed that lack of reciprocity in three exchange relationships contributes to the development of burnout among teachers.

SAMENVATTING

In dit proefschrift is in een populatie van Nederlandse leerkrachten uit het basis-, voortgezet-, beroeps- en speciaal onderwijs, onderzoek gedaan naar de prevalentie van burnout. Burnout is te definiëren als een proces waarin drie symptomen op de voorgrond treden: emotionele uitputting, depersonalisatie en een verminderde persoonlijke bekwaamheid (*Maslach & Jackson*, 1986, 1996). Het meest kenmerkende symptoom van burnout is de emotionele uitputting. Het heeft te maken met het uitgeput raken van de menselijke energiebronnen, vergelijkbaar met een accu die op den duur onvoldoende opgeladen kan worden. Leerkrachten die zonder resultaat veel tijd en energie steken in bijvoorbeeld het motiveren van leerlingen, kunnen op langere termijn uitgeput raken. Depersonalisatie heeft, vanuit de onderwijssituatie bekeken, te maken met de afstandelijke en onpersoonlijke houding van leerkrachten naar hun leerlingen, collega's en de schoolleiding. Dit uit zich in negatieve, onverschillige en cynische reacties. Een verminderde persoonlijke bekwaamheid ontstaat als leerkrachten zich niet meer competent voelen en het idee hebben niets meer te bereiken in hun werk. Het typerende van burnout is dat juist de meest toegewijde docenten die zich persoonlijk betrokken voelen bij het werk de grootste kans hebben om opgebrand te raken.

Burnout onder leerkrachten is – met name in Noord-Amerika - vrij intensief onderzocht. Een goede theoretische conceptualisering van waaruit het ontstaan van burnoutklachten verklaard kan worden is echter schaars. In dit proefschrift is burnout bij leraren onderzocht tegen de achtergrond van sociale uitwisselingsprocessen. Een van de toonaangevende theorieën op dit gebied is de billijkheidstheorie van *Adams* (1965). De theorie van *Adams* over sociale uitwisselingsrelaties en in het bijzonder het billijkheidsperspectief gaat er vanuit dat mensen streven naar een evenwicht tussen hetgeen ze in een relatie investeren en er uit terugkrijgen. Mensen die in een uitwisselingsrelatie zitten waarbij de investeringen niet in evenwicht zijn met de opbrengsten krijgen een gevoel van onbillijkheid. In dit proefschrift is de veronderstelling dat deze onbillijkheidsgevoelens op langere termijn gezondheidsklachten, waaronder burnout, teweeg kunnen brengen.

In deze samenvatting worden aan de hand van 3 onderzoeksvragen de belangrijkste bevindingen beschreven van de studies die ten behoeve van dit proefschrift zijn uitgevoerd. Aan het begin van elke paragraaf wordt de corresponderende onderzoeksvraag weergegeven. Dit laatste hoofdstuk sluit af met een aantal overwegingen aangaande toekomstig onderzoek. Aansluitend wordt ingegaan op een aantal praktische implicaties.

Het meten van burnout bij Nederlandse leraren

De 3-dimensionele structuur van het burnoutconstruct bestaande uit emotionele uitputting, depersonalisatie en verminderde persoonlijke bekwaamheid is in diverse onderzoeken bevestigd met de originele Amerikaanse Maslach Burnout Inventory for Educators (MBI-ES). In dit proefschrift is een Nederlands equivalent, de MBI-NL-ES, ontwikkeld en gevalideerd. De onderzoeken beschreven in de hoofdstukken 1 tot en met 3 richten zich op het burnoutconstruct en het meten van burnout. De daarbij behorende onderzoeksvragen zijn de volgende:

Onderzoeksvraag 1

- A. Wordt het uit 3 dimensies bestaande burnout construct (emotionele uitputting, depersonalisatie en verminderde persoonlijke bekwaamheid) adequaat gemeten met de Nederlandse versie van de Maslach Burnout Inventory, de mbi-nl-es?
- B. Hoe kan burnout worden geplaatst in een bredere context van welzijn, zoals verminderde organisatie betrokkenheid, aspiratie en sociaal functioneren?
- C. Verschillen burnoutscores bij Canadese leraren zich van burnoutscores bij Nederlandse leraren op bepaalde demografische (leeftijd en geslacht) en werk gerelateerde factoren (schooltype, ervaring en aanstelling)?

In hoofdstuk 1 is de psychometrische kwaliteit van de MBI-NL-ES onderzocht (onderzoeksvraag 1a). In het algemeen kan worden gesteld dat de MBI-NL-ES een betrouwbaar en valide instrument is om burnout onder Nederlandse leraren te meten. Door toevoeging van twee depersonalisatie-items is de betrouwbaarheid van deze subschaal verhoogd. In de Nederlandse populatie leraren wordt – overeenkomstig de originele burnout-vragenlijst - dezelfde 3-dimensionele structuur gevonden. Bovendien onderscheidt burnout zich van werkgerelateerde stress veroorzaakt door bijvoorbeeld tijdsdruk en onvoldoende ervaren steun van collega's en de school en van andere gezondheids- en welzijnsklachten zoals ontevredenheid en verminderde betrokkenheid bij de organisatie. Hierbij moet echter wel worden aangetekend dat het onderscheidend vermogen van emotionele uitputting met andere affectieve gezondheidsklachten zoals depressie en negatieve stemmingsklachten minder is dan de andere twee burnout-dimensies, depersonalisatie en verminderde persoonlijke bekwaamheid. Eerdere studies hiernaar zijn op hetzelfde probleem gestuit. Wellicht is het zo dat de gezondheids- en welzijnsbeleving beïnvloed wordt door een negatief ervaren affectiviteit.

Ofschoon in relatief preliminair stadium, is uit ons onderzoek eveneens gebleken dat de MBI-NL-ES burnoutklachten voldoende adequaat kan voorspellen. Gezonde leraren met gemiddelde en hoge scores op emotionele uitputting en depersonalisatie een grotere kans hebben om een jaar later burnoutklachten te hebben ontwikkeld.

Het concept van welzijn en de positie van burnout binnen een breder welzijnskader is onderzocht in hoofdstuk 3 (onderzoeksvraag 1b). De traditionele uni-dimensionele opvatting van welzijn is in dit proefschrift getoetst aan een 5-dimensioneel model bestaande uit een affectieve, professionele, sociale, cognitieve en psychosomatische dimensie. Twee belangrijke conclusies zijn hieruit naar voren gekomen. Ten eerste sluit het multi-dimensioneel model beter aan bij het concept van welzijn dan het uni-dimensioneel model. Ten tweede wijzen de resultaten uit dat met name affectief welzijn, emotionele uitputting en cognitieve vermoeidheid de meest centrale dimensies zijn in het 5-dimensioneel welzijnsmodel. Deze bevinding onderschrijft het idee van andere onderzoekers dat welzijn met name tot uiting komt in de emotionele en affectieve gezondheidsaspecten.

In zowel Noord-Amerikaans als Nederlands burnoutonderzoek wordt gevonden dat burnout samenhangt met diverse demografische en werk gerelateerde factoren zoals leeftijd, geslacht en werkervaring (bijv. Russell, Altmeier, & Velzen, 1987, Van Ginkel, 1987). Gerelateerd aan onderzoeksvraag 1b wijzen de in hoofdstuk 2 beschreven resultaten uit dat Canadese leerkrachten over het algemeen meer burnoutklachten rapporteren dan Nederlandse leerkrachten. Ofschoon niet duidelijk is welke factoren aan deze verschillen ten grondslag liggen, kan worden geconcludeerd dat burnoutscores uit een Noord-Amerikaanse normgroep niet zonder meer gebruikt kunnen worden ter bepaling van de ernst van de burnoutklachten bij Nederlandse leerkrachten.

Resumerend kan de eerste onderzoeksvraag als volgt worden beantwoord:

- A. het uit 3 dimensies bestaande burnout construct (emotionele uitputting, depersonalisatie en verminderde persoonlijke bekwaamheid) wordt adequaat gemeten met de Nederlandse versie van de Maslach Burnout Inventory, de MBI-NL-ES. Bovendien is de betrouwbaarheid van de depersonalisatie subschaal verbeterd.
- B. welzijn bij leraren is multi-dimensioneel en komt vooral tot uitdrukking in affectief, emotioneel en cognitief welzijn.

- c. de verschillen in burnoutscores tussen Nederlandse en Canadese leraren wijzen er op dat er een Nederlandse normgroep dient te worden ontwikkeld, waarmee in dit proefschrift een begin is gemaakt.

Het meten van onbillijkheid

De relevantie van sociale uitwisselingsprocessen is aangetoond in tal van verschillende settings, zoals intieme relaties en werkrelaties. Echter, de resultaten uit deze onderzoeken zijn vaak niet eenduidig als het gaat om het meten van onbillijkheid. Onderzoeken waarbij twee of meer onbillijkheidsmaten met elkaar zijn vergeleken, zijn schaars en hebben tot op heden niet geleid tot een gestandaardiseerde onbillijkheidsmaat. Aangaande het meten van onbillijkheid zijn in dit proefschrift de onderstaande onderzoeksvragen geformuleerd:

Onderzoeksvraag 2

- A. Hoe zijn de specifieke, globale en zelfingeschatte billijkheidsmaten onderling gerelateerd?
- B. Welke maat (specifiek, globaal, zelfingeschat) kan het beste gebruikt worden om onbillijkheid te meten binnen de populatie van leerkrachten?

Gerelateerd aan onderzoeksvraag 2a zijn in een studie beschreven in hoofdstuk 4 drie reciprociteitsmaten gevalideerd: een specifieke maat, een globale en een zelfingeschatte maat. Ten behoeve van het ontwikkelen van deze specifieke maat is aan leerkrachten gevraagd om meest relevante investeringen en opbrengsten in hun relatie met leerlingen, collega's en de school te benoemen. De investeringen en opbrengsten die leraren opnoemden voor de uitwisselingsrelaties op de 3 onderscheiden niveaus (leerlingen, collega's en de schoolleiding), zijn gebruikt om een specifieke onbillijkheidsmaat te ontwikkelen. De globale onbillijkheidsmaat bestond uit score berekend uit de ratio tussen een globale investerings- en opbrengstenitem. In de zelfingeschatte onbillijkheidsmaat is deze ratioscore tussen investeringen en opbrengsten bijeengebracht in een item. De resultaten van het onderzoek wijzen uit dat des te globaler de onbillijkheidsmaat, des te lager de samenhang is met de specifiek onbillijkheidindex. Dit zou er op kunnen duiden dat als aan leraren wordt gevraagd om hun investeringen en opbrengsten te evalueren op een specifiek niveau, andere cognitieve processen worden aangesproken dan wanneer zij worden gevraagd dit in te schatten op een globaler niveau.

Leerkrachten lijken een soort bottom-up procedure te hanteren in het evalueren van hun investeringen en opbrengsten. Dat wil zeggen, leerkrachten beginnen met een specifieke inschatting, gevolgd door een globale inschatting en eindigend in een overall evaluatie (zelfgeschatte maat). Dit betekent dat de interne afweging die de zelfgeschatte maat in zich bergt een betere voorspeller van de ervaren mate van onbillijkheid is dan de andere (specifieke en globale) maten.

Om een aantal redenen lijkt reciprociteit het beste gemeten te kunnen worden met de zelfingeschatte maat (onderzoeksvraag 2b). **Ten eerste** onderscheidt de zelfingeschatte onbillijkheidsmaat zich meer dan de andere onbillijkheidsmaten van de werkgerelateerde stressoren die specifiek veroorzaakt worden in een bepaalde uitwisselingsrelatie. Anders gezegd, zelfingeschatte onbillijkheid in de uitwisselingsrelatie met leerlingen is vooral gerelateerd aan werkgerelateerde stress (bijv. door tijdsdruk, moeilijke leerlingen) binnen deze relatie. Zo is ook de ervaren onbillijkheid in de relatie met collega's significant gerelateerd aan stressfactoren die met collega's te maken hebben (bijv. te weinig steun van collega's). **Ten tweede**, reacties op gevoelens van onbillijkheid zoals burnout en verminderde betrokkenheid bij de organisatie zijn sterker gerelateerd aan de zelfingeschatte reciprociteitsmaat dan de andere reciprociteitsmaten. Dit impliceert dat de zelfingeschatte maat geschikter zou kunnen zijn om individuele variaties in reacties op onbillijkheid te verklaren. **Ten derde**, de zelfingeschatte maat komt meer overeen met de interne standaarden die leerkrachten naar ons idee hanteren om tot een eindoordeel te komen of hun investeringen en opbrengsten al dan niet in balans zijn

In antwoord op de tweede onderzoeksvraag volgt dat:

- A. de samenhang tussen de specifieke onbillijkheidsmaat en meer globale maten (globale en zelfingeschatte maat) relatief zwak is.
- B. de zelfingeschatte maat de beste manier lijkt om onbillijkheid te meten omdat de samenhang met andere werkgerelateerde stressoren op elk uitwisselingsniveau (leerlingen, collega's en schoolleiding) sterker is dan de samenhang tussen meer specifieke onbillijkheidsmaten en werkgerelateerde stressoren. Dit geldt eveneens voor de samenhang met diverse gezondheidsmaten.

De relevantie van sociale uitwisselingsprocessen in de ontwikkeling van burnout

De relevantie van sociale uitwisselingsprocessen in de ontwikkeling van burnoutklachten is aangetoond in diverse onderzoeken (zie bijvoorbeeld Buunk & Schaufeli, 1993). In dit proefschrift is de samenhang tussen sociale uitwisselingsprocessen en burnout bestudeerd bij leraren op grond van de onderstaande onderzoeksvraag:

Onderzoeksvraag 3

- A. Is er enig evidentie voor de aanname dat de werkrelaties met leerlingen, collega's en de school relevante uitwisselingspartners zijn voor leraren? En dat de uitwisselingsrelatie met leerlingen beschouwd kan worden als de meest persoonlijke en met de school de minst persoonlijke met de relatie met collega's daartussenin?
- B. Is onbillijkheid in de relatie met leerlingen, collega's en de school gerelateerd aan burnout?
- C. Wat is het causaal verband tussen onbillijkheid en burnout bij leraren?

In dit proefschrift zijn leerlingen, collega's en de schoolleiding beschouwd als de meest relevante sociale uitwisselingspartners voor leraren. Gerelateerd aan onderzoeksvraag 3a, komt uit de studie beschreven in hoofdstuk 4 naar voren dat het aantal door leerkrachten opgesomde investeringen en opbrengsten het hoogst was voor de uitwisselingsrelatie met leerlingen. Het op een na hoogste aantal werd genoemd voor de werkrelatie met collega's en het laagste aantal werd genoemd voor de uitwisselingsrelatie met de school. Hieruit concluderen wij dat de uitwisselingsrelatie met leerlingen beschouwd kan worden als de meest persoonlijke en de uitwisselingsrelatie met de school de minst persoonlijke. De uitwisselingsrelatie met collega's zit tussenbeide.

Gerelateerd aan onderzoeksvraag 3b is in de hoofdstukken 4 en 5 de relatie tussen burnout en onbillijkheid onderzocht. Resultaten wijzen uit dat burnout significant samenhangt met onbillijkheid: leraren die meer investeren dan terugkrijgen rapporteren significant meer burnoutklachten dan leraren bij wie een balans bestaat tussen investeringen en opbrengsten. Echter, de veronderstelling dat burnout het sterkst samenhangt met ervaren onbillijkheid in de meest persoonlijke relaties is niet ondersteund. Waar in de ene studie (hoofdstuk 4) een bevestiging is gevonden voor bovengenoemde veronderstelling, wijzen de resultaten uit de andere studie (hoofdstuk 5) uit dat burnout en vooral emotionele uitputtingsklachten, slechts een

significante samenhang laat zien als onbillijkheid wordt ervaren op schoolniveau. Los van het feit dat het om resultaten gaat uit slechts 2 studies en nader onderzoek op dit punt is geïndiceerd, kan de samenstelling van de steekproef van leerkrachten van invloed zijn geweest op de uitkomsten. In het onderzoek uit hoofdstuk 4 bestaat de steekproef uitsluitend uit leerkrachten van het voortgezet onderwijs. In de studie uit hoofdstuk 5 bestaat de steekproef uit leerkrachten van het basisonderwijs en voortgezet onderwijs. Eerder is aangestipt dat leerlingen uit het voortgezet onderwijs moeilijker te motiveren zouden zijn en daarom voor leerkrachten een relatief grotere stressbron zijn dan bijvoorbeeld leerlingen uit het basisonderwijs. Het is mogelijk dat dit de resultaten uit hoofdstuk 4 en 5 heeft vertekend. Het is mogelijk dat in de uitwisselingsrelatie waarin de ervaren onbillijkheid het hoogst is, de samenhang met burnoutklachten ook het grootst is. Dit staat eigenlijk haaks op onze aanname dat in de meest persoonlijke uitwisselingsrelatie (met leerlingen) de 'gevoeligheid' voor discrepanties tussen investeringen en opbrengsten het snelst opgemerkt wordt en dat ten gevolge daarvan ook meer burnoutklachten ontstaan. Hoe dan ook zou op basis van deze tegenstrijdige resultaten geconcludeerd kunnen worden dat schooltype mogelijk een interveniërende rol speelt als het gaat om de relatie tussen onbillijkheid en burnout. Een tweede verklaring voor bovengenoemde bevinding is dat met name de emotionele uitputtingsklachten een reactie zijn op ervaren onbillijkheid ongeacht de uitwisselingsrelatie waarin deze onbillijkheid gevoeld wordt. In de studie beschreven in hoofdstuk 6 is onderzocht op welke manier onbillijkheid samenhangt met diverse gezondheids- en welzijnsaspecten, waaronder burnout. Verondersteld werd dat affectieve reacties (emotionele uitputting) samenhangen met onbillijkheid in de uitwisselingsrelaties met hetzij leerlingen, collega's of de school. Deze zogenoemde generische reacties worden dus a-specifiek verondersteld. Daar tegenover staan de – wat wij noemen – specifieke psychologische 'withdrawal'-reacties, zoals een verminderde organisatie betrokkenheid en een gedepersonaliseerde houding naar leerlingen en collega's, die uitsluitend optreden bij onbillijkheidsgevoelens veroorzaakt op één uitwisselingsniveau. Met andere woorden, een verminderde betrokkenheid bij de organisatie zal hoofdzakelijk tot uiting komen indien leerkrachten onbillijkheid ervaren in de relatie met de school. Zo zullen leerkrachten psychologisch meer afstand nemen van hun collega's als zij zich onbillijk behandeld voelen door hun collega's. Bovengenoemde veronderstelde samenhangen tussen onbillijkheid en het optreden van generische en specifieke 'withdrawal'-reacties worden in het onderzoek inderdaad bevestigd.

Hiermee komen we op onderzoeksvraag 3c waarin het causaal verband tussen onbillijkheid en burnout aan de orde is gesteld. In de theorie over sociale uitwisselingsprocessen wordt verondersteld dat mensen een

disbalans tussen investeringen en opbrengsten proberen te herstellen, hetzij door hun investeringen omlaag te brengen, hetzij door hun opbrengsten te vermeerderen. De generieke en specifieke ‘withdrawal’-reacties zijn typische strategieën gericht op het verminderen van de investeringen. Uit de resultaten is gebleken dat het verminderen van de investeringen volgens genoemde strategieën een averechtse werking hebben op het herstellen van de balans tussen investeringen en opbrengsten en daarmee de ervaren onbillijkheid. Sterker nog, door de generieke en specifieke ‘withdrawal’-reacties raakt de balans nog meer verstoord dan het al was. Dit betekent dat het psychologisch verminderen van de investeringen geen adequate oplossing biedt om het gevoel van onbillijkheid kwijt te raken. Het lijkt er haast op dat het beëindigen van een onbillijke uitwisselingsrelatie, door bijvoorbeeld een andere baan te zoeken, de enige uitweg is. Anderzijds kan men ook proberen om de balans te herstellen door de opbrengsten proberen te vermeerderen bij gelijkblijvende investeringen.

In antwoord op de derde onderzoeksvraag kan worden gesteld dat:

- A. sociale uitwisselingsprocessen met leerlingen, collega’s en de schoolleiding als relevant voor leraren kunnen worden beschouwd, waarbij de relatie met leerlingen als het meest relevant naar voren is gekomen en de relatie met de schoolleiding het minst relevant.
- B. ondanks de tegenstrijdige resultaten aangaande de samenhang tussen onbillijkheid en burnout binnen elke uitwisselingsrelatie, kan in het algemeen worden gesteld dat onbillijkheid gerelateerd is aan burnoutklachten.
- C. de hypothese dat burnoutklachten verminderen door herstel van de ervaren disbalans tussen investeringen en opbrengsten bijvoorbeeld door de investeringen te verlagen, is niet ondersteund. Sterker nog, gevoelens van onbillijkheid lijken eerder toe te nemen als de investeringen omlaag worden gebracht.

Tot slot, de onderzoeken beschreven in dit proefschrift hebben op drie aspecten tot nieuwe inzichten geleid. Ten eerste is het door de ontwikkeling van een valide en betrouwbare Nederlandse burnoutvragenlijst mogelijk om een normgroep op te bouwen en gericht onderzoek te doen naar het voorkomen van burnout bij leraren. Ten tweede hebben we aangetoond dat onbillijkheid het best gemeten kan worden met de zelfingeschatte onbillijkheidsmaat. Ten derde is gebleken dat het concept van investeringen en opbrengsten een relevant theoretisch kader biedt van waaruit het ontstaan van burnoutklachten beter bestudeerd en begrepen kan worden.

REFERENCES

- Adams, J.S. (1963). Toward an understanding of inequity. *Journal of Abnormal & Social Psychology*, 5, 422-436.
- Adams, J.S. (1965). Inequity in social exchange. *Advances in Experimental Social psychology*, 2, 267-299.
- Bakker, A.B., Schaufeli, W.B., Sixma, H., Bosveld, W., & Van Dierendonck (2001). Burnout contagion among general practitioners. *Journal of Social & Clinical Psychology*, 20, 82-98.
- Buunk, B. P., & Schaufeli, W.B. (1993). Burnout: A perspective from social comparison theory. In W.B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 53-69). New York, NY: Hemisphere.
- Caljé, D., Schaufeli, W.B., Schreurs, P.J.G. (1998). GezonderWIJS. Periodiek ArbeidsGezondheidskundig Onderzoek (PAGO) voor het onderwijs. Handleiding ten behoeve van de bedrijfsgezondheidszorg. [General periodic health-screening instrument for teachers, PAGO] Heerlen: Stichting Vervangingsfonds en Bedrijfsgezondheidszorg voor het Onderwijs.
- Caljé, D., Schreurs, P.J.G., Schaufeli, W.B., Taris, T., & Van Workum, R. (1998). Wie wordt ziek? PAGO-vragenlijst voor het onderwijs. [Who gets ill? Health screeningsinstrument for the teaching sector] *Arbeidsomstandigheden*, juni 1998, 48-50.
- Enzmann, D., Schaufeli, W.B., & Girault, N. (1995). The validity of the Maslach Burnout Inventory in three national samples. In L. Bennett, D. Miller, & M. Ross (Eds.). *Health workers and AIDS: Research, interventions and current issues* (pp. 131-150). Chur: Harwood.
- Gold, Y., & Grant, R.A. (1993). Teachers managing stress and preventing burnout: The professional health solution. London, UK: The Falmer Press.
- Greenglass, E.R., Burke, R.J., & Ondrack, M. (1990). A gender-role perspective of coping and burnout. *Applied Psychology*, 39 (1), 5-27.
- Lujansky, H. & Mikula, G. (1983). Can equity theory explain the quality and the stability of romantic relationships? *British Journal of Social Psychology*, 22, 101-112.
- Maslach, C. (1993).

Burnout: A multi-dimensional perspective. In W.B. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 19-32).

Washington, DC: Taylor & Francis.

- Maslach, C., & Jackson, S. E. (1986)

Maslach Burnout Inventory.

Palo Alto, CA: Consulting Psychologists Press.

- Maslach, C., Jackson, S.E., & Schwab, R.L. (1996).

Maslach Burnout Inventory – Educators Survey (MBI-ES). In C. Maslach, S.E. Jackson, & M.P. Leiter, *MBI Study* (3d ed).

Palo Alto, CA: Consulting Psychologists Press.

- Rosenholtz, S.J., & Simpson, C. (1990).

Workplace conditions and the rise and fall of teachers' commitment.

Sociology of Education, 63, 241-257.

- Russel, D.W., Altmeier, E., Velzen, D. van (1987).

Job-related stress, social support, and burnout among classroom teachers.

Journal of Applied Psychology, 72, 269-274.

- Ryff, C.D. (1989).

Happiness is everything, or is it? Exploration of the meaning of psychological well-being.

Journal of Personality & Social Psychology, 57, 1069-1081.

- Schaufeli, W.B., Daamen, J.R.H., & Mierlo, J.A.J. van (1994).

Burnout among Dutch teachers: An MBI validity study.

Educational & Psychological Measurement, 54, 803-812.

- Schaufeli, W.B. & VanDierendonck, D. (1993).

The construct validity of two burnout measures.

Journal of Organizational Behavior, 14, 631-647.

- Schaufeli, W.B., VanDierendonck, D., & Van Gorp, K. (1996).

Burnout and reciprocity: Towards a dual-level social exchange model.

Work & Stress, 10, 224-237.

- Walster, F. Walster, G.W., & Berscheid, E. (1978).

Equity: Theory and research.

Boston, MA: Allyn & Bacon.

- Warr, P.B. (1987).

Work, unemployment, and mental health.

Oxford: Oxford University Press.