Lack of reciprocity among Dutch teachers: Validation of reciprocity indices and their relation to stress and well-being

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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 further 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

1. 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 (status, appreciation, gratitude, and pay, cf. La Gaipa, 1977). Any disturbance of this balance will lead to feelings of inequity, stress, and, eventually, to poor 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. and 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 to be relevant in natural settings, such as intimate relationships (Buunk, and Van Yperen, 1991; Traupmann, Petersen, Utne, and Hatfield, 1981), relationships at

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work in general (Iverson, and Roy, 1994; Perry, 1993) and in the teaching setting in particular (Van Horn, Schaufeli, and 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 paper, Adams (1965) proposed that people evaluate their relationships with others by assessing their own input-outcome ratio against the input-outcome ratio of a comparative other. While several investigators used variations on this particular equity measure (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, and Hay, 1985), or detailed assessments of the investments in, and outcomes gained from, a particular relationship (Geurts, Schaufeli, and Buunk, 1993; Van Dierendonck, Schaufeli, and Buunk, 1996).

As there are several operationalizations of equity in use, one important question would seem to be whether these measures can be used interchangeably. Stated differently, to which degree do different measures of inequity tap into 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, p. 104) 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'.

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.

1.1. Social exchange in the teaching setting

Adams (1965, p. 422) 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 team mates or between teacher and student' (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 (Peeters, Geurts, and Van Horn, 1998; Van Horn et al, 1999), but also between teachers and their colleagues (Taris, Peeters, Le Blanc, Schaufeli, and Schreurs, in press) and between teachers and the school (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 that 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 to be salient in the teacher setting in previous research (Blase, 1986; Hart, 1987; Van Horn *et al.*, 1999; Weisfelt, 1993).

2. Study 1: A qualitative study of teachers' investments and outcomes

People's evaluation of whether a particular exchange relationship is equitable or not may depend on their subjective assessment of the value and relevance of specific investments in and outcomes from that relationship (Lujansky, and 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 (Schaufeli, Van Dierendonck, and 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, and Oldham, 1976; Van Vianen, and 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.

(1) *Hypothesis 1.* Based on our assumption that the levels of psychological contact differ for each relationship, it is expected that the highest total number of investments and outcomes will 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.

(2) *Hypothesis 2a.* Focusing on the distinction between task-oriented and relationship-oriented work aspects, it is expected 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.

(3) *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.

(4) *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.

2.1. Method

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

2.1.2.   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 min. 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.

2.1.2.1.   Reliability analysis. Two independent raters (both naïve female psychology Ph D. students?) 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. Inter-rater coefficients (Cohen's *k*) were computed to assess the reliability of the raters' judgements. Coefficients below .6 were considered to be poor; coefficients between .6 and .7 were considered to be acceptable; and coefficients of .7 and over were considered to be good.

2.2. 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 to be reasonably reliable.

2 2.1. *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 the student 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, $F(1,70) = .94$, n.s.; $M_{task} = .93$; $M_{rel} = .85$). We also found support for our assumption that the number of reported task-oriented investments and outcomes ($M_{task} = .52$) will be significantly lower than the number of relationship-oriented investments and outcomes ($M_{rel} = .84$; $F(1,70) = 20.41$, $p < .001$) (Hypothesis 2b supported). Against our expectation that at organizational level the number of reported task-oriented investments and outcomes ($M_{task} = .30$) would be significantly higher than the number of reported relationship-oriented investments and outcomes ($M_{rel} = .39$), no significant differences were found ($F(1,70) = 2.17$, n.s.) (Hypothesis 2c rejected).

2.2.2. *Scale development*: Items were formulated based on the reported investments and outcomes in each subcategory. For each exchange relationship, multi-item scales were constructed from investments and outcomes items, respectively. The resulting six scales were: (1) investments in the relationship with students (e.g. 'How much do you invest in motivating your students?'); (2) outcomes from the relationship with students (e g. How much satisfaction do you get from the personal contacts with your students?'), (3) investments in the relationship with colleagues (e.g. How much do you invest in formal contacts with your colleagues?'), (4) outcomes from the relationship with colleagues (e.g. How much appreciation do your colleagues have for your work?'); (5) investments in the relationship with the school (e.g How much do you invest in having personal contacts with the school?'); and (6) outcomes from the relationship with the school (e.g. To what extent do you feel supported by the school?) Figure 1 gives all the scales. These scales are empirically validated in Study 2.

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 Task-oriented	n	k	Investments Relationship-oriented	n	k	Outcomes Task-oriented	n	k	Outcomes Relationship-oriented	n	k
Students	Preparation	20	.97	Students' motivation	14	.78	Positive results and feedback	30	.82	Personal contacts	44	.54
	Teaching	37	86	Personal contacts	48	.61	Motivation and appreciation	37	.63	Students' personal growth	9	.64
	Discipline	5	65									
	Individual coaching	9	.61									
	Total 71			Total 62			Total 67			Total 53		
Colleagues	Informal and formal contact	55	.88	Personal contacts	47	.70	Informal and formal contact	20	83	Personal contacts	57	.64
				Respect and appreciation	2	1.00				Respect and appreciation	10	.59
	Total 55			Total 49			Total 20			Total 67		
School	Informal and formal contact	39	.91	Personal contacts	8	63	Informal and formal contact	18	.75	Personal contacts	17	.80
				Respect and appreciation	4	.47				Respect and appreciation	12	70
	Total 39			Total 12			Total 18			Total 29		

A: *Students*

I1 How much do you invest in having personal contacts with students?
I2 How much do you invest in motivating your students?
I3 How much do you invest in coaching your students individually?
I4 How much do you invest in keeping order and discipline?
I5 How much do you invest in preparing lessons?
O1 How much appreciation do your students have for you?
O2 How much satisfaction do you get from the fact that your students get good grades?
O3 How much satisfaction do you get from the personal contacts with your students?
O4 How much satisfaction do you get from your students' personal growth?

B: *Colleagues*

I1 How much do you invest in a brotherly interaction with colleagues?
I2 How much do you invest in formal contacts with your colleagues?
I3 How much do you invest in having personal contacts with your colleague's?
O1 How much interest do your colleagues show in your work?
O2 How much appreciation do your colleagues have for your work?
O3 How much respect do your colleagues have for you?
O4 To what extent do you feel supported by your colleagues?

C: *School*

I1 How much do you invest in an informal relationship with the school?
I2 How much do you invest in having personal contacts with the school?
I3 How much do you invest in a formal relationship with the school?
O1 How much interest does the school show in your work?
O2 How much appreciation does the school have for your work?
O3 How much respect does the school have for your work?
O4 To what extent do you feel supported by the school?

Figure 1   Specific investments (I) and outcomes (O) in the relationship with students, colleagues and the school

2.3.   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 the level of students, 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 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 also 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 increase burnout complaints among teachers (Peeters et al., 1998; Schaufeli et al., 1996). 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 invest and gain from task-oriented aspects as they would regarding the relationship-oriented aspects (Hypothesis 2a supported). As for the

exchange relationship with colleagues, teachers invest more in and gain more from relationship-oriented aspects than task-oriented aspects (Hypothesis 2b supported). No significant differences were found at the organizational level (Hypothesis 2c rejected). These results are discussed in the overall discussion.

3. Study 2: Validation of reciprocity indices

As noted earlier on, as yet no standardized operationalization of reciprocity has emerged and 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 (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, and Schaufeli, 2001, for similar results). The three reciprocity measures used in the present study are based on this notion and, therefore, exclude social comparison as a means 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 the classical equity formula of Adams (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.

3.1.   Validity

3.1.1.   *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 formulae (Anderson, 1976; Walster, 1975), suggesting that the measurement of equity, rather than the application of the (alternative) formulae, is responsible for differences in research findings. This raises the question of how the three reciprocity measures included in the present study are interrelated.

(1) *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). However, alternative models will be considered.

3.1.2. *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 (Hart, 1987). In particular, tensions in the relationship with students are found to be caused by, for instance, disciplinary problems, students' demotivation and misbehaviour (Boyle, Borg, Falzon, and Baghoni, 1995; Hodge, Jupp, and Taylor, 1994). The relationships with colleagues and school tensions are said to be evoked by, for instance, lack of appreciation and support (Brown, and Ralph, 1992; Smith, and Bourke, 1992; Travers, and Cooper, 1993). In terms of social exchange theory, in which it has been stated that (social) exchange processes underlie *any* relationship that people are engaged in (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. This is expressed in the following hypotheses.

(2) *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.

(3) *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

(4) *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 have 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, and Geurts, 1996). Lack of reciprocity has also been associated with burnout (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 (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.

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

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

(7) *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.

3.2. *Method*

3.2.1. *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 years), and 73% were men. The participants' average amount of work experience was 16 years (SD = 8.7 years). A total of 61% of the teachers worked part-time, and they were employed for on average 22 h/week (SD = 6.45 years).

3.2.2. *Measures*

3.2.2.1. *Specific reciprocity index*: Investments and outcomes at a detailed level in each relationship were 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 1 = 'very little' to 5 = 'very much'. 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, p. 64) 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'. 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).

3.2.2.2. *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 1 = 'very little' to 5 = 'very much'. 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 to assess teachers' feelings of being under benefited (I > O), in balance (I = O), and over benefited (I < O).

3.2.2.3. *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).

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

3.2.2.5. *Burnout*: The Dutch version of the Maslach Burnout Inventory (MBI, Maslach, and Jackson, 1986) for educators (Van Horn, and Schaufeli, 1998) was used to measure burnout. Previous studies among teachers (Schaufeli, Daamen, and Van Mierlo, 1993; Van Horn *et al.*, 1999) and other human service professions (Enzmann, Schaufeli, and Girault, 1995), 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) 'I try to keep away from the personal problems of my students'. Accordingly, the Dutch MBI version for teachers comprises 22 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 5-item depersonalization scale was .60). 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 low scores on personal accomplishment reflect high levels of burnout.

3.2.2.6.   *Organizational commitment:* Organizational commitment was measured using a 6-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 6-item scale was $\alpha = .88$.

3.2.2.7.   *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.

3.3.   Results

3.3.1.   *Convergent validity:* To examine the relations among specific, global, and self-rated reciprocity indices in more detail, three structural equation models (Joreskog, and 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, Root Mean Square Residual (RMR) = .07, Non-normed Fit Index (NNFI) = .95, Comparative Fit Index (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 into 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 (n.s.).

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

Table 2.   Descriptive statistics and intercorrelation of variables. Total sample ($N = 260$).

Reciprocity indices	M	SD	1	2	3	4	5	6	7	8	9
1 specific students	1.03	0.19		.37***	30***						
2 global students	1.23	0 31			.52***						
3 self-rated students	3.49	0.74									
4 colleagues	0.91	0.17					37***	12			
5 specific colleagues	1 13	0.36						.50***			
6 self-rated colleagues	3.20	0.50									
7 specific school	0.93	0.40								32***	35***
8 global school	1.80	1.03									.42***
9 self-rated school	3 37	0 70									
Stressors											
10 Students	2.76	0.80	.10	.36***	.43***	−.02	−.01	05	−.07	.02	−.05
11 Time	2.61	0 83	.22***	.15*	.22***	.05	.11	.10	.05	.14*	.13*
12 Teaching	2.37	0.66	.14*	.24***	.28***	.05	.08	.08	.08	.02	.04
13 Colleagues	2.25	0.78	−.11	−.07	.03	.13*	.35***	.31***	.10	.01	.09
14 School	2.05	0.91	12	.20***	.14*	.13*	.10	.04	.49***	.25***	.36***
Health outcomes											
15 Emotional exhaustion	2 09	1.23	15*	.30***	.27***	.07	.16*	20**	08	.10	01
16 Depersonalization	1.56	0.84	.04	23***	.22***	.02	.02	.02	−.01	−.02	.02
17 Personal accomplishment	3.77	0 79	−.02	−.28***	−.29***	−.01	.01	−.05	04	03	− 01
18 Commitment	4.81	1.12	− 06	−.24***	− 13*	−.13*	− 14*	−.07	−.36***	−.28***	−.25***
19 Psychosomatic complaints	7.72	7.01	.11	.16**	.21***	.13*	.08	.09	.03	.01	−.05

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

All variables are standardized. A high ratio score refers to feelings of being underbenefited ($I > O$). High scores on the work-related stress scales refer to more feelings of stress.
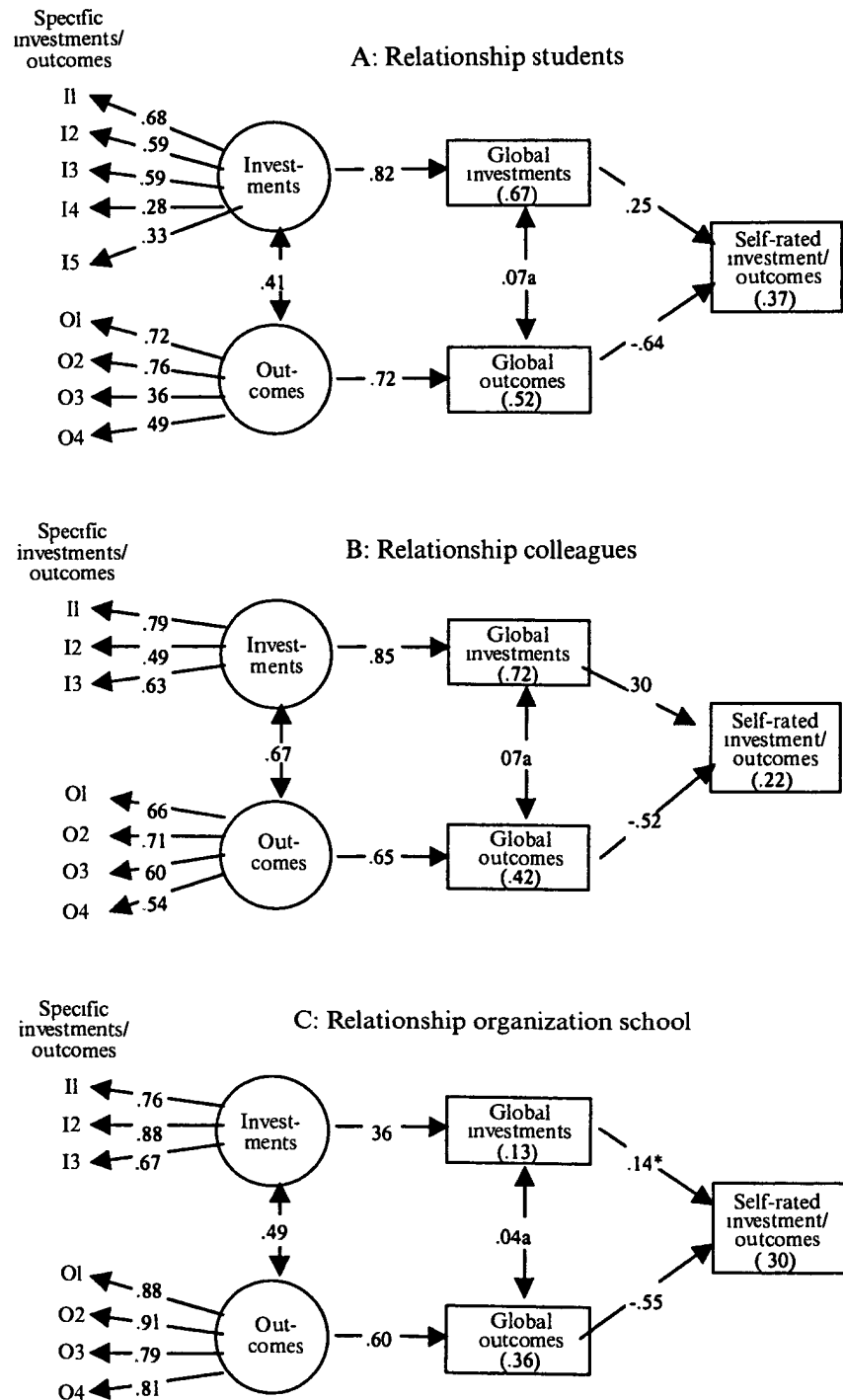
Figure 2   Standardized effects for the relations among specific, global and self-rated investments and outcomes for the relationship with the students, colleagues and organization (item numbers correspond with those given in panels A, B and C in figure 1, respectively). All effects significant at $p < 001$, except $*p > 05$.

examine this possibility, the models presented in figure 2 were tested with the arrows pointing the other way. In two out of three cases, a significantly poorer fit to the data was obtained ($p < .001$); furthermore, in all models several effects did not differ significantly from zero Thus, the top-down models received little empirical support.

3.3.2. Construct validity

3.3.2.1. *Reciprocity and stressors*: The hypothesized relationships between lack of reciprocity in the relationships with students, colleagues, and the school and 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 control for demographic variables such as age and gender (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).

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 experience significantly 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.

3.3.2.2. *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

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	.01			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	.001			−.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

* $p < 05$; ** $p < 01$; *** $p<.001$.
[†] 0=male; 1=female.

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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

* $p<.05$, ** $p<.01$; *** $p<.001$.
† 0=male; 1=female.

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) as dependent variables. The self-rated, global, and specific reciprocity indices were entered in the third, fourth and fifth steps, respectively (table 4).

Hypothesis 2d stated that burnout (i.e. emotional exhaustion, depersonalization and a sense of reduced personal accomplishment) is particularly predicted by the 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. Overall, results from regression analyses support this hypothesis. That is, lack of reciprocity (self-rated index) at the student 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 only in emotional exhaustion. At the organizational level, *no* significant results were found for any of the three burnout symptoms, indicating that lack of reciprocity in the relationship with the school does not manifest itself in higher levels of burnout.

However, as expected, lack of reciprocity in the exchange relationship with the school is significantly related to a reduced 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.

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.

3.4. Conclusions

3.4.1. *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.

3 4.2. *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

4. 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 (Lujanski, and Mikula, 1983; Van Horn et al., 1999), in other studies similar results were found irrespective of the use of various equity measures (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 refer to '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 considerably 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.

4.1. *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 the 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, and 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, but also they 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 also at a social level. 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 lowest 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.

4.2.   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 more stress due to the interaction with the school.

The frequency and intensity of interactions with students, colleagues, and the school was 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 the organizational level was significantly related to a reduced 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 indices 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 it is conceptually closest to the phenomenon to be explained. 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 would be well advised to use self-rated indices instead of very specific indices.

Acknowledgements

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