JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 46

RAIMO MÄKINEN

TEACHERS' WORK, WELL-BEING, AND HEALTH

JYVÄSKYLÄN YLIOPISTO, JYVÄSKYLÄ 1982

JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 46

RAIMO MÄKINEN

TEACHERS' WORK, WELL-BEING, AND HEALTH

ESITETÄÄN JYVÄSKYLÄN YLIOPISTON YHTEISKUNTATIETEELLISEN
TIEDEKUNNAN SUOSTUMUKSELLA JULKISESTI TARKASTETTAVAKSI
SALISSA C 1 KESÄKUUN 4. PÄIVÄNÄ 1982 KELLO 12.00

JYVÄSKYLÄN YLIOPISTO, JVYÄSKYLÄ 1982

TEACHERS' WORK, WELL-BEING, AND HEALTH

JYVÄSKYLÄ STUDIES IN EDUCATION, PSYCHOLOGY AND SOCIAL RESEARCH 46

RAIMO MÄKINEN

TEACHERS' WORK, WELL-BEING, AND HEALTH

JYVÄSKYLÄN YLIOPISTO, JYVÄSKYLÄ 1982

URN:ISBN:978-951-39-9049-7
ISBN 978-951-39-9049-7 (PDF)
ISSN 0075-4625

Jyväskylän yliopisto, 2022

ISBN 951-678-721-5
ISSN 0075-4625

Jyväskylän yliopiston monistuskeskus ja
Kirjapaino Oy Sisä-Suomi - Jyväskylä 1982

ABSTRACT

Teachers' work, well-being, and health/Raimo Mäkinen — Jyväskylä: Jyväskylän yliopisto, 1982. — 232 p. (Jyväskylä Studies in Education, Psychology and Social Research, ISSN 0075-4625; 46).
ISBN 951-678-721-5.
Tiivistelmä: Opettajien työ, hyvinvointi ja terveys.
Diss.

The aims of the study were (a) to describe, evaluate and compare the local environment and school, personal and professional background, composition of work and time budget, sociocultural relations, interpersonal relations, job satisfaction and psychological well-being, and stress and health among teachers of different school levels; and (b) to explore the path structure of the correlations between these variable groups, ie. an attempt was made to develop a macro-model describing the correlational determination of well-being among teachers.

The population of the study consisted of the membership of the Teachers' Trade Union (OAJ), from which a systematic sample of 2,618 persons was drawn. The material was collected in the form of a postal inquiry; the rate of return was 75 %. The intercorrelations of the research variables were analysed by means of the latent variables path analysis.

In regard to health and most psychosomatic and psychological stress symptoms, teachers form a relatively healthy occupational group. The prevalence of certain stress symptoms (eg. tiredness and headache), however, is rather high. The results on interpersonal and, especially, on sociocultural relations suggest a rather high rate of impairment of well-being.

A teachers' self-reports about his pupil relations are the strongest correlates of his job satisfaction and psychological well-being. Smaller effects are shown by staff and parent relations and by satisfaction with material working conditions. Urban environments are associated with less satisfying relations with school authorities and pupils. A large school size has some negative effects upon staff relations and possibilities of influencing one's own work.

Teacher. compulsory education. upper secondary. school size. work load. time budget. staff relations. pupil relations. stress. job satisfaction. health. path analysis.

PREFACE

This study is the final report of the Finnish contribution to a joint Nordic research project on the working conditions and well-being of teachers. I must express my gratitude for the stimulating collaboration with my fellow researchers who conducted the parallel studies in Denmark, Norway and Sweden. I owe special thanks to Professor Lennart Levi from the Laboratory for Clinical Stress Research, Karolinska Institute, Stockholm: he led the Nordic coordination of the project and in many ways gave special support to the Finnish study.

I must also thank the Finnish Teachers´ Unions Opettajien Ammattijärjestö OAJ and Svenska Finlands Lärarförbund SFL and their representatives Mr Alpo Aunola, Mrs Mona Hallbäck, Mr Asseri Joutsimäki and Mr Ralf Mattsson. They participated in the planning of the study and the help of the Unions was of crucial importance for the practical carrying out of the study.

The study was carried out at the Department of Psychology, University of Jyväskylä. My thanks are due to Professor Martti Takala and Professor Isto Ruoppila of this department. Their teaching, thinking, encouragement and unfailing support has been of the greatest importance for my personal development (ever since I started at the Department as a young student more than twenty years ago) as well as for this particular study. They, as well as Professor Raimo Konttinen (from the Institute for Educational Research, University of Jyväskylä) and Dr. Eero Blåfield (from the Department of Statistics, University of Jyväskylä) also read the manuscript of this study. Their expert comments greatly facilitated the completion of the study.

My thanks are due to Mr Markku Penttonen, B.A., who helped and advised me in the use of EDP. Mrs Katriina Laakkonen, B.A., did her best to try to improve my English during my writing the report. The language of the final manuscript was checked by Mr David Wilson, MA.

In thanking my wife Marjaleena and my children Riikka, Riku and Riitta here, I know that a part of all the time and consideration I owe them was invested in this work.

The study was financed by the Finnish Academy and supported by a grant from the Finnish Cultural Fund. I must also thank the University of Jyväskylä for publishing this study in the Jyväskylä Studies in Education, Psychology and Social Research series.

Jyväskylä, February 1982

Raimo Mäkinen

CONTENTS

1 INTRODUCTION

1.1 Teachers´ well-being as a research problem

An investigator of the work, well-being and health of teachers tends to feel disturbed by the second half of an ironical remark by Kasl (1978,4): He may find it very easy to demonstrate how ´vastly important´ the social problem under study is, but he cannot claim that the research theme is ´greatly neglected´ or especially new.

The case is not that. On the contrary, one can easily trace relevant empirical studies from the early thirties (Phillips, 1932; Hicks, 1933; Hoppock, 1935; Peck, 1936; National Education Association, 1938). Apart from the classic job satisfaction study by Hoppock, these early studies were focused on estimating the prevalence and ´causes´ of nervousness, strain or anxiety among teachers. (For short quotations of some of these, see Coates & Thoresen, 1976).

Since then, the research has continued without interruption and, it seems, has greatly escalated during recent years. Lundman (1981) reviews seventeen Swedish studies on the working conditions and well-being of teachers conducted in the seventies and the number of original works quoted by Coates and Thoresen (1976) is about one hundred. In addition to the pioneering and continuous research activity of the U.S. National Education Association (1938, 1939, 1951, 1968; Randall, 1951 - all these quoted in Coates & Thoresen, 1976) many European teacher unions have initiated research in the field (Klason, 1971; National Association of Schoolmasters, 1976; Vestre, 1976; Wahlund & Nerell, 1976).

In all these studies - and in many others not mentioned above - the main problems explored have been (a) how satisfied, stressed or strained the teachers are, and (b) what the perceived or correlative ´causes´ of well-being or impaired well-being are. The period of writing more or less critical review articles on this type of research conducted thus far seems to have begun in the seventies (Coates & Thoresen, 1976; Kyriacou & Sutcliffe, 1977; Keaves & Sinclair, 1978; Kyriacou, 1980; Phillips & Lee, 1980; Lundman, 1981).

Besides the research directly concerning teacher stress and the well-being of teachers, two broad areas of educational research more or less relevant to the topic have to be mentioned here. Sociological and social psychological studies on the teacher´s role, role conflict and role change have been numerous since the fifties; and much of the socio-psychological role theory has been developed in the context of teacher research (Getzels & Guba, 1954 and 1955; Gross et al, 1958; Manwiller, 1958; Wilson, 1962; Musgrove & Taylor, 1965 and 1969; Biddle & Thomas, 1966; Musgrove, 1967; Westwood, 1967a and 1967b; Taylor, 1968; Hoyle, 1969;

Carver & Sergiovanni, 1969; Biddle, 1970; Grace, 1972). Besides exploring and discussing the determinants, prevalence, forms and consequences of the conflicts connected with the teacher´s role, this orientation has served as a frame of reference for some of the more direct studies on the well-being of teachers (Klason, 1971; Vestre, 1976).

Research into teacher-pupil interaction forms an essential part of educational science and is, consequently, too broad to be characterized by mentioning some examples of it here. Although mainly focused on the quality, determinants and consequences of teacher-pupil interaction as factors in the effectiveness of school work, it indirectly concerns an essential factor of teachers´ well-being: interaction with pupils is obviously the crucial aspect of a teacher´s daily work and determines the main satisfactions and dissatisfactions derived from the work.

After having mentioned these general perspectives one should possibly ask whether the well-being of teachers, as a research problem, is an exhausted one. To a certain degree, it possibly is and the research has begun to be repetitive (Keavney & Sinclair, 1978; Lundman, 1981). As a practical problem of school policy, however, the theme apparently has not been at all settled. Of course, this is partly due to the theoretical inadequacies of the research efforts.

On the other hand, the well-being of teachers, as a research problem, is obviously inexhaustable in its nature and because of its direct connections with the actual practice of teaching. It continues to present research problems (among other problems) as long as there are schools and teachers in society.

Regardless of the possibility that ´school is school wherever it happens´ (Jackson, 1968), schools and teaching do function in different societies and cultural settings. Each of these has to organize and understand the work of its own teachers. Similarly, the schools and the societies around them change with time, and the work of teachers has to be continuously re-evaluated.

Also in the case of Finland, the research area is not totally virgin, although no very extensive studies have been conducted. Koskenniemi´s research group at the University of Helsinki began their studies on the socialization of young elementary school teachers in the fifties (Koskenniemi, 1965 and 1969; Louhimo, 1969) and has (while continuing studies on the didactic process) explored the problem situations of teaching (Gröhn, 1979 and 1980). As one of the pioneers, Heinilä studied the job satisfaction and role of grammar school teachers in physical education (1964a and 1964b). Some minor research efforts (clearly stimulated by the public discussion and restlessness around the school reform during the sixties and seventies) are those by Lauren (1970), Mäkinen (1974a and b), Nikkanen (1978) and Ruohotie (1978 and 1980).

Some Finnish studies more or less indirectly related to the field are those by Nummenmaa et al. (1962) and Karvonen et al. (1965) on teachers´ opinions of the

school reform and educational goals; by Kyöstiö (1968; on the role of teachers), by Tuomola (1969; on the role of school inspectors) and by Viljanen (1970; on the 'development milieu', i.e. certain aspects of the working and living conditions of elementary school teachers). In addition, the problems of school discipline have been studied by Aho (1974a, b), Mäntyniemi & Haikola (1975) and Kari et al (1980). Earlier research initiated by the Finnish teachers' organizations has been focused on the work-load of teachers (Peltonen, 1969; Makkonen, 1971; Pekkanen, 1973; Askelo, 1981).

The background of the present study is grounded in the atmosphere of the early seventies when
(a) public discussion of the school reform (the transition from the binary school system to the comprehensive school) was at its height,
(b) the reform was started (in 1972),
(c) general restlessness and anxieties of the teachers became public,
(d) survey studies on occupational well-being had became popular in all the Nordic countries, and
(e) the Nordic teacher organizations together with the officials of the Nordic Council and some Nordic researchers into 'work stress' or 'the quality of working life' were motivated to initiate a joint-Nordic research project on the work and well-being of teachers. Thus, the study has had its national as well as Nordic background motivation.

In actual practice, the planning of a joint-Nordic research project (named NORDSTRESS) was started in 1976 by a research group consisting of researchers in Denmark, Finland, Norway and Sweden. It was decided that the aim of the study would be an exploration and comparison of the background, work, well-being and health of comprehensive school teachers in the four Nordic countries and, in the second phase, at a comparative analysis of the correlative determinants of teachers' well-being in these countries.

Although much of the planning of the study has been done cooperatively (in order to meet the needs of a comparative study), each country has adapted the work to the research needs and interests specific to it. Accordingly, the results of the four studies have been partly published in national reports (Blichfeldt, 1980, in Norway; Borg et al., 1981, in Denmark; Brenner et al., 1979 and 1981; and Wallius, 1981, in Sweden), partly in a series of comparative Nordic reports (Lundberg, 1980a, b, c, d; 1981). The major part of the Finnish results have been reported in Finnish by Mäkinen (1980a; 1980b) and by Mäkinen & Penttonen (1980). In addition, a series of unpublished M.A. theses were prepared as a part of the project (Aronen et al., 1978; Halttunen et al, 1978; Hjelm et al., 1979; Koskinen et al, 1979; Hakonen et al., 1981).

The relationship of the present study to the reports mentioned above is that it contains (secondarily) a summary of the descriptive results reported earlier in Finnish and (primarily) an independent study focusing on the overall

structure of the correlative determination of well-being among Finnish primary and secondary school teachers.

1.2 General outlines of the present study

The primary research task of this study is to explore the correlative 'causes' of variation in the well-being of Finnish teachers working at different levels of general education, i.e. in the comprehensive school or in the upper secondary school. Thus, the within-occupation variance is studied while comparisons with other occupations are of secondary interest in this context.

In order to get a relatively broad view of the problem, an eclectic approach is adopted. This is reflected in three ways:

(1) The 'dependent variable' (well-being) is conceptualized and operationalized in various, partly overlaping ways. Besides somatic and psychosomatic health, it includes here a set of psychological and psychosocial aspects of adjustment and satisfactions at work as well as in other life sectors.

(2) No single conceptual framework is preferred in trying to understand, explain and predict the determination of a teacher's well-being. Instead, concepts like fatigue, stress, job satisfaction, and alienation were felt useful notions in this broad area, each relevant for different aspects of the problem. The broad concept of stress, however, has been the main tool while structuring the study, but it was not at all felt obliged in any way to exclude any other aspect simply because difficulties were encountered in studying it in terms of stress.

(3) Explanatory variables represent, consequently, most of the areas deemed to be related to teachers' well-being in previous studies.

In order to counterbalance and reorganize the atheoretical and omnibus approach underlined above, there has been an attempt to follow a quasi-systemic type of thinking. The problem is conceptualized in terms of interrelated human and social systems representing different levels of comprehensiveness.

The basic unit is the socio-psycho-somatic system represented by an individual man; it is the conscious person who is well or less well and whose well-being is studied. While he is himself a whole of integrated sub-systems, the individual is dependent on and interacts with an objective environment which also is systemic in nature.

Methodologically, a path-analytic approach is suggested by this point of view, even when using cross-sectional survey data in the empirical study. The correlative 'causes' of variation in the well-being of teachers are studied by exploring the path structure of the correlative connections between different measures of well-being (as dependent variables) and variables representing different system levels of the teachers' environment.

2 THEORETICAL AND EMPIRICAL BACKGROUND

2.1 A stress model

2.1.1 Stress - fatigue - job satisfaction - alienation

Besides the physical, biological and chemical health hazards of working life, four different research orientations into the work and well-being -theme are roughly indicated by the key words fatigue, job satisfaction, alienation, and stress.

Fatigue and job satisfaction represent more 'natural' or common-sense orientations, while alienation and stress are constructs created by academic theorizing.

Fatigue and stress are connected more with the research areas of ergonomics, occupational medicine, biology and physiology while job satisfaction and alienation belong to the constructs of psychology, social psychology and sociology.

Fatigue and job satisfaction are phenomena directly connected with an individual at work. Stress is a tool for analysing certain parts of the interaction of an individual with his environment, whether at work or in other environments. Alienation (in the social psychological sense) is used for analysing the interaction of an individual with his social and societal environments.

Empirical research into fatigue dates back to the work carried out in England by the Industrial Fatigue Research Board (later the Industrial Health Research Board) at the beginning of the century (Chambers, 1961). Later - up to the seventies - this research has developed along the lines of work stress research (Cameron, 1971 and 1973, McFarland, 1971).

Job satisfaction research is often felt to begin with the work of Hoppock in 1935. Since then, this research has continued without interruption, without losing its common-sense features and, it seems, without any greater theoretical advancement (Locke, 1976).

Empirical research applying the alienation construct to the well-being theme seems to have been less extensive, especially when compared with the amount of theoretical writing on alienation in the fifties and sixties. The research has focused on the effects of certain features of work organizations (bureaucracy, authority and power relations) and of the structure of the individual workers' tasks (e.g. the assembly line) (Seeman, 1961, Blauner, 1964; Kornhauser, 1965; Gardell & Westlander, 1968; Israel, 1971).

Research into stress at work seems, at present, to exceed in amount and extent any limits to be briefly characterized in one or two sentences. It has become an overall perspective which includes most of the more specific attempts to analyze different (negative) effects of work on well-being. Physiological and psychological fatigue can be conceptualized as an alarm reaction to stress situations or,

if severe or continuous and leading to exhaustion, as a pathological end-state produced by stress. Job satisfaction (dissatisfaction) can be described as a stress situation or as a result of stresses at work. Similarly, alienation can be conceived as representing one of the psychological responses to stress at the level of the individual or at the level of a group of individuals.

2.1.2 Jenkins' general model of stress

We refrain from any attempts to review or reformulate the definitions, theories and empirical results relevant to the themes 'stress and health' or 'stress at work': they already exist in abundance and no real and useful reformulation is felt to be possible in this connection. Instead, only Jenkins' (1979) comprehensive model depicting the interaction of stress and the organism is utilized as a starting point and reproduced in Table 1. Although the model is a general one (not restricted to stress at work), it is deemed to be especially useful (in its comprehensiveness) for the purposes of this study.

In short, Jenkins' model proposes that
(a) an organism with certain ADAPTIVE CAPACITIES responds to different STRESSORS by various ALARM REACTIONS which are followed, if necessary, by various DEFENSIVE REACTIONS which, if inadequate, may be followed by / lead to different PATHOLOGICAL END STATES; and
(b) all these phases of the stress process may involve phenomena belonging to the BIOLOGICAL, PSYCHOLOGICAL, INTERPERSONAL and SOCIOCULTURAL levels of human life.

The first point (a) represents a reformulation of Selye's (1956) conceptions about the stages of the stress process as integrated with the ideas about the adaptive capacity, i.e. individual and situational differences in the coping resources (on which, in effect, Jenkins' paper is focused). Point (b) contains a development of the ideas concerning the physiological, psychological and sociological levels of stress (Lazarus, 1966 and 1971). In underlining the resources at the individual as well as at the social level the model shows some general similarities with a discussion on role stress by Kahn & Quinn (1970).

On the whole, Jenkins' model contains in a summary form almost all of the components included by the stress models of different authors with physiological, psychosomatic, psychological, social psychological, or sociological orientations. The only omission of any great importance concerns the column of stressors: Jenkins does not clearly differentiate 'perceived stress' (House, 1974), 'psychosocial stimuli' (Levi, 1977; Kalimo et al., 1979) or 'factual stressors' (Kyriacou & Sutcliffe, 1978a), on the one hand, from 'conditions conducive to stress', 'objective working conditions' or 'potential stressors', on the other.

Table 1. Jenkins´ model of the stress process (Jenkins, 1979, p. 6)

	Adaptive capacity	Stressors	Alarm reaction	Defensive reaction	Pathological end-state
Biological level	State of physigue, nutrition, vigor Natural or aquired immunities	Deprivation of biological needs Excess inputs of physical or biological agents	Arousal - hunger, thirst, pain, fatigue Changes in physiological function	General adaptation syndrome Physiological compensation Shifts in metabolism Changes in pain threshold	Deficiency diseases "Exhaustion" Addictions Chronic dysfunction Structural damage
Psychological level	Resourcefulness, problem-solving ability Ego strength Flexibility Social skills	Perceptions and interpretations of danger, threat, loss, disappointment, frustration, sense of failure or hopelessness Loss of self acceptance Threat to security	Feelings of deprivation - boredom, grief, sadness Feelings of anxiety pressure, guilt Fear of danger	Ego defences - denial, repression, projection Defensive neuroses Perceptual defences - wishes, fantasies, motives Planning Problem solving	Despair, apathy Chronic personality pattern disturbances Psychoses Chronic affective disorders Meaninglessness
Interpersonal level	Primary relationships including family Network of social supports	Social isolation Lack of acceptance Insults, punishments, rejections Changes in social groups, especially l^sses	Antagonism, conflict, suspicion Feelings of rejection, punishment	Defensive, rigid social relating Avoidance Assuming sick role Aggressiveness "Acting out" En'isting social supports	Chronic exploitation Becoming an outcast Imprisonment Permanent disruption of interpersonal ties Chronic failure to fulfill roles
Sociocultural level	Values Norms and practices "Therapeutic" social institutions Systems of knowledge and technology	Cultural change Role conflict Status incongruity Value conflicts with important others Forced change in life situation	Communication of concern and alarm Expressive behaviour of crowds Mobilization of social structures	Culturally prescribed defences - scapegoating prejudice Explanatory ideologies Legal and moral system Use of curers and institutions	Alienation, anomie Breakdown of social order Disintegration of the cultural systems of values and norms

The model is labeled by Jenkins as one depicting the interaction of stress and the (individual) organism. It is the individual who, in varying degrees, possesses and makes use of the adaptive capacities. Besides the biological and psychological resources, there are the interpersonal and sociocultural factors which strengthen or lessen the possibilities of an individual coping with the stressors encountered by him. Similarly, it is easy to see how the interpersonal and sociocultural stressors mentioned by Jenkins can present stressors on an individual.

Difficulties are encountered, however, when trying to conceptualize some of the alarm reactions, defensive reactions and (pathological) end-states as stages of a stress process undergone by an individual: 'Expressive behaviour of crowds' seems to be an alarm reaction of a 'crowd' and 'Disintegration of the cultural systems of values and norms' seems to be a pathological end-state of the systems concerned.

Jenkins himself remarks that the listing of the variables contained by the cells of the model is preliminary. The incongruencies mentioned above seem, however, to indicate an alternative model which, perhaps, Jenkins had in mind while writing his paper: one could try to formulate a model where the 'stress cycles' of different interpersonal as well as of the sociocultural systems are presented together with that for the physio-psychological individual.

The stress process proceeds in time and, accordingly, most stress models assume a continuous feed-back from the later stages to the earlier ones. This is not made explicit in the short paper by Jenkins, but it is clearly implied by his model. Many of the end-states mentioned for each level are almost synonymous with the variables given in the adaptive capacity column: 'State of physique' is apparently impaired by 'deficiency diseases', a person with 'permanent disruption of interpersonal ties' lacks supporting 'primary relationships' etc. The adaptive capacities can be impaired also by some acute alarm reactions as well as by a portion of the defensive reactions: a person with acute 'feelings of anxiety' or with 'defensive neuroses' is psychologically less capable of encountering new stressors. These backward effects become especially important in cases where the stress situation is long in duration or where new stressors are met before the ongoing stress process is over (as the case usually is in actual life).

One crucial point in the model is that the four levels are assumed to interact continuously. Jenkins, without going into a detailed discussion on this point, mentions two examples: (1) stresses at the interpersonal level usually create alarm reactions at the psychological level; and (2) inadequacies at the sociocultural level can foster the development of pathology in biological functioning.

In principle, it seems, all interactions between the components of the model - including backward effects from one level to another - are possible. For instance, a person 'chronically failing to fulfill his roles' (an end-state at

the interpersonal level) apparently perceives the situation as one of frustration and failure (a stressor at the psychological level).

In actual practice, however, certain relations between the levels seem to be more probable and meaningful than some others. On the other hand, different schools of stress research could be characterized by analysing what types of variables and relations they prefer to focus on in their research efforts.

Especially in wealthy societies and in the middle class occupations (where the biological stressors are of minor importance) it is the psychological level that collects and channels the stressors at the interpersonal and social levels. For instance, one could ask to what degree social isolation, lack of acceptance, changes in primary groups (stressors at the interpersonal level), or cultural change, role conflict and status incongruity (stressors at the sociocultural level) function as stressors without first being perceived and interpreted as threats or frustrations at the psychological level (Lazarus, 1966) - or without implying a threat or loss of the cognitive orientations one is used to and relies on while interacting with one´s environment (Marris, 1974).

2.1.3 Stress and well-being

Because of its comprehensiveness, the Jenkins model serves also as a point of reference for a short discussion of the concepts of health and well-being as related to stress.

The adaptive capacities as well as the end-states represent health as a more or less permanent state of physiological, psychological and social fitness or resourcefulness. It must be noted that a pathological end-state is only one of the possible results of a stress process; usually the original level of functioning is retained after coping successfully in the situation. (In effect, one could interpret the stress models as attempts to explain why and how the stresses, even the acutely severe ones, are usually overcome.)

By definition, the intermediate stages of the stress process are assumed to be more temporary in character. Accordingly, they do not directly indicate health (as a steady state); they indicate whether (or to what degree) a person at that moment is stressed / undergoing a stress process. He may be temporarily ´sick´ (as in the case of picking up an influenza virus and responding to it by systemic defences like fever), but he can be expected to overcome it and to continue living after the episode - perhaps with increased adaptive capacities (immunity). Instead of health, the broader concept of well-being could be used for these conditions: a person undergoing a severe stress is apparently not ´well´ although his health is not (yet, perhaps) permanently impaired.

Of course, ´being under stress´ does not exhaust the concept of well-being (something which, in effect, consists mainly of a set of positive connotations without many

specific denotations). On the other hand, not all stress can be interpreted as an impairment of well-being. This is the case only when stress is ´severe´ enough, ie. the alarm and/or the defensive reactions are inadequate and restrict the functioning of the organism, and the probability of some pathological end-state is more than chance.

2.1.4 A process model and cross-sectional data

Jenkins´ model is in many ways very preliminary and in need of (but also worthy of) further development. For the purposes of this study, however, it will suffice to use it as a set of organizing ideas while orientating our study on the well-being of teachers, ie. the well-being of individuals forming an occupational group. From this point of view and being bound to cross-sectional research material, the following perspectives are indicated.

By its very nature, a model of a process is not directly applicable to or, even less so, testable by cross-sectional research data. Besides the lack of the time dimension in this kind of data one encounters difficulties in trying to measure independently the variables representing the different stages of the stress process. In effect, one is obliged to return to the simplistic two-variable design (criticized by Jenkins): we can try to measure the stressors and, to some extent, the adaptive capacities as a set of independent variables and treat the alarm reactions, defensive reactions and end-states as a set of dependent or criterion variables. At best, a three-variable design might be possible - assuming that one is able to operationalize the (more permanent) end-states independently from the acute alarm and defensive reactions. One is not, however, allowed to interpret a correlation between these two sets of measures as indicating that the present ´end-state´ is a product of the stress process which is going on at the same time. In this context, a process model can be cross-sectionally utilized only as a propositional map while selecting the research variables and interpreting the results.

For formulating hypotheses on the correlations in cross-sectional data, a comprehensive process model of stress like that of Jenkins turns out to be very discouraging: it proposes that only low correlations, if any, can be expected between different measures of stress factors and well-being. This follows from the possibility of coping successfully with the stress situations as well as from the multiplicity of the variables involved in the stress process.

Two general principles regarding the relative size of the empirical correlations, however, seem to be implied by the Jenkins model, especially when interpreted in the light of a rule of thumb given by Runkel and McGrath (1972, 16) - it reads that variables describing the same system tend to be interrelated more strongly than variables belonging to more remote systems.

First, it seems probable that variables representing the

same or adjacent stages of the stress process tend to be intercorrelated more strongly than variables from more remote phases. The prevalence and strength of stressors, for instance, correlate more with alarm and defensive reactions than with single variables representing the end-states.

Second, variables describing the same level (in terms of the biological, psychological, etc. levels) should be intercorrelated more strongly than variables from different levels. Without rejecting the basic assumption that the four levels interact, it is plausible to expect that interpersonal stressors, for instance, in the first place are responded to by alarm and defensive reactions at the same level. In effect, one is tempted to speculate that an ability to restrict a stress process on one level helps one to cope adequately with the stressor: an interpersonal stressor is hardly removed by means of a defensive reaction at the biological level (eg. the general adaptation syndrome).

2.2 A reformulation

As a continuation of the foregoing discussion and in order to formulate a conceptual orientation for the purposes of the present study, we return, first, to the problem concerning the interaction between 'the four levels of human life' in the Jenkins model. After this, some aspects of occupational well-being, as related to a general model of stress, are discussed. Finally, a general outline of the systems relevant to the work and life of teachers is presented.

2.2.1 'The four levels of human life'

In the context of the short paper by Jenkins (1979) one has to ask (a) what really is meant - or could be meant - by the four levels if looked at from the standpoint of an individual and from the standpoint of the interpersonal and sociocultural systems involved; and (b) what assumptions concerning the interaction of the levels are or could be implied?

The interpersonal level is apparently restricted to the phenomena where the individual - undergoing a stress process - is in face-to-face interaction with other individuals or with groups of individuals. The sociocultural level refers to the interaction of an individual with broader and more abstract social, organizational and cultural systems.

The interpersonal and sociocultural levels of the life of an individual are formed by his perceptions, cognitions, interpretations, emotions, interactions and behaviours related with phenomena of an interpersonal and sociocultural kind.

The interpersonal and, more especially, the sociocultural levels of the life of an individual also have their

objective counterparts, independently of the participation of the individual. As a member of an interpersonal system containing at least two other members an individual may be an object, actor or witness of episodes involving punishment, suspicion, acting out or exploitation.

In relation to the sociocultural level, the role of an individual is more one of an object and witness, less one of an actor. He may adopt occupational and other cultural values, participate in communication of concern and alarm, or in expressive behaviours of crowds, defend himself by adopting scapegoating prejudices and different explanatory ideologies as well as the possibility of becoming alienated from the cultural values. Besides or instead of this he may perceive other people doing the same, but usually he does not exercise any essential influence on the sociocultural happenings around him.

The sociocultural phenomena (as existing regardless of the participation of any single individual or of any single group) seem to form a set of independent factors which, if seen from the angle of an individual or a single group of individuals, mainly function as a source of adaptive capacities or as a source of stressors.

2.2.2 Stress at work

As noted earlier, Jenkins´ model is a general one, not restricted to, or especially focused on, occupational stress. Two possibilities, however, seem to be readily available when reformulating it for the purposes of a work-and-stress study. Either, (a) one could divide the five columns of the model into two sub-columns: one for variables more or less directly connected with work, the other for variables connected with the other life sectors. Obviously, the two sub-columns would be assumed to overlap and interact as well as to be partly indistinguishable from each other (especially so in the case of the ´biological level´). Or, (b) one could rewrite the model as one containing only variables relevant to the working life and add (somewhere) a separate block labeled ´life outside work´.

In effect, the latter solution (b) has been usually arrived at by authors formulating stress-at-work -models: life outside the work is represented as a global block (sometimes two) of interacting, intervening, conditioning, modifying or moderating variables (eg. Caplan et al., 1975; House, 1974; Kyriacou & Sutcliffe, 1978a; Levi, 1977). Besides the somewhat varying labels used, minor fluctuation can be seen in whether these variables are conceptualized as those modifying the relations between the work-stress phases or as those directly affecting the variables that represent the phases.

In Jenkins´ model, however, the variables with this modifying function form the column of the adaptive capacities. In other words, the model of work stress would contain two columns for the capacities, one for the work-related variables and the other for ´life outside work´. When analysing the working life, the other life

sectors (including all stress processes going on in them) are conceptualized as a background from which one gets (or does not get) resources used in the work sector.

The general idea stressing the 'wholeness' of human life, however, seems to be violated by these types of work stress models. An assumption of some interaction and 'spillover' between the life sectors (in addition to the interaction between the life levels) implies that the life outside the work is also conceptualized as one depending on the work, not only as one determining the work sector. Accordingly, the work-related stress processes are assumed - at all stages of the process - to participate in determining well-being in the other life sectors as well.

This last formulation leads one to prefer the first (a) of the two alternatives mentioned above: a general model of occupational stress and well-being will, then, include, at all stages of the work stress process, phenomena belonging to the work sector as well as to life outside the work.

By preferring the more complex model one, in effect, does not criticize the other alternative as not being adequate for studies on stress at work. It is only suggested that a research theme labelled work (or stress at work) and well-being-in-general is broader in scope and, accordingly, the more complex formulation is preferable in this case.

Thus far, we have arrived at a set of general propositions of the following kind:

(a) Psychosocial and psychosomatic health and well-being are conceptualized as a flow of processes which are roughly described by a general model of the stress process. It must be noted, however, that a process conceptualization can be used only as an organizing background mode of thinking for empirical studies based on cross-sectional data.

(b) The stress process involves continuous interaction of the biological, psychological, interpersonal and sociocultural levels of the life of an individual. The interpersonal and sociocultural levels consist of one's own cognitive, affective and behavioural interactions with other individuals and with various social, organizational and cultural systems surrounding one.

(c) Besides consisting of different levels, the life of an individual is composed of interacting sectors, one of which is work. The well-being dependent on and reflected in the working life is assumed also to be dependent on and reflected in other sectors of one's life.

As such, these common sense propositions are very general and inprecise in formulation. They almost seem to suggest that 'everything depends on everything'. When striving toward more specific predictions about 'what depends on what' one has to look for (and at) the systemic structure of the life of the individual. What depends on what is, in principle, a question about how the Lewinian 'psychological environment' or Koffka's 'behavioural world' of the individual is constructed (Caplan et al., 1975).

By assuming that the behavioural worlds of individuals are reasonably realistic one can try to predict them by

means of analysing the structure and regularities of objective world which surrounds individuals.

2.2.3 Teacher stress

It is at this point that discussion has to become more or less specific to the occupational group under study: people get concretely related to different interpersonal, social, organizational and cultural systems of the society depending on their occupation. In the case of teachers, the following points can be picked up.

At the most general level, being a teacher implies that one gets, in a very unique way, related to the basic values and goals of the society (because of functioning as a transmitter of these) as well as to the controversies concerning these values. At the same time, being a teacher implies membership of the teaching profession with certain subcategories, sharing its socialization procedures (training), sub-culture, goals, values, fears and organizations as well as its socioeconomic status in the society. As regards the sub-categories of the profession, the most important classification is apparently that on the basis of the school level at which one works and is trained to work.

If looked at from a more concrete point of view, in terms of the actual work done by a teacher, he is a part of the pupil-teacher system, a member of the school staff and his school as an organization with specific physical, authority and task structures and value aspects.

Through his school, a teacher gets related to a specific communal school system and, through this, dependent on the municipality and the community. Besides this, there are two or three other links that connect the teacher with his local community. Through his own pupils, he is related to the local youth culture as well as to the adult culture as represented by the parents of the pupils. On the other hand, he usually lives in the same community where he works, i.e. his general living conditions are in many ways defined by his school.

Besides the occupational role, teachers - like members of any other occupational group - have their personal backgrounds and lives outside the work. Everybody belongs to his/her specific age and sex groups, has (or has not) a family, other out-of-work relations and free time activities. Although not directly predetermined by one's occupation (or, at least, not to the same extent as is the case with working life), the systems forming one's out-of-work life are also in many ways dependent on the work, as is the relationship between the life sectors (as discussed in eg. Young & Willmott, 1973).

While interacting and coping with his environment, a teacher becomes partly dependent on it; his well-being is dependent on and reflected by this interaction. Because we are striving towards an explanation of the well-being of individuals, we are here interested more in this part of the reciprocal interdependence than in the causal effects of an

'ndividual upon the supra-systems in which he functions as a component. Accordingly, we conceptualize the quality of the person-environment interaction as a part of the individual´s well-being rather than as an indicator of the ´well-being´ of the supra-system concerned (e.g. the social system formed by the school staff).

When analysing the relations of an individual with his systemic environment, one cannot avoid noticing that something like the ´systemic distance´ of the individual from different systems of his environment varies. He functions directly as a component of some of them, and is interacting with some others (supra-systems of higher levels) only as a component of their components or sub-systems.

Accordingly, differences in the well-being of individual teachers are assumed to be more directly correlated with differences in the systems close to the teacher (eg. the size of the groups taught), while the effects of the differences in the more remote systems (eg. the urbanness of the community) are (by definition) indirect, ie. mediated by one or more links between the individual and his environment.

2.3 Selected earlier findings

What, in essence, has been proposed in the foregoing discussion is that a macro-model of the well-being of teachers should and could be built up by outlining
(a) what cultural, social, organizational and interpersonal systems are involved in the working and living situation of a teacher, and
(b) in what ways, direct as well as indirect, these systems are interrelated with each other.

It is easily seen that an attempt to answer these questions by reviewing earlier research findings on education and teachers (and, perhaps, on some other occupational groups) would not be a very fruitful strategy in this context. First, our research problems turn out to be too broad in scope to be treated in this way within any reasonable space: there are too many possible ´systems´ and interrelations between them to be systematically scanned through. Second, most research on the health and well-being of teachers apply research strategies which are not close enough to our way of conceptualizing the research problem. We can expect to arrive at a more or less scattered collection of relationships between interesting empirical variables, but very few systematic analyses of the structural order of causes and effects seem to be available. For the sake of orientation, however, selected earlier research findings are briefly reviewed in the following section.

2.3.1 Perceived sources of stress

Two types of study focused directly on the perceived or self-reported 'causes' of well-being (or problems of well-being) of teachers have been numerous. First, there are the interview-type explorations where the subjects are asked to list (orally or in writing) the sources of satisfaction and dissatisfaction, concern, stress or strain related to the daily work of teaching or, in more general terms, to teaching as a profession (eg. McLoughlin & Shea, 1960; Rudd & Wiseman, 1962; Eriksson & Larsson, 1974; Lortie, 1975; Fountain, 1975; Dunham, 1976; Ahlin & Jonsson, 1979; Gröhn, 1979).

The second variant of this strategy consists of studies where the subjects are given a list of possible sources of anxiety, stress, dissatisfaction etc. and asked to rate the stressfulness or prevalence of the items listed (eg. National Education Association, 1968; Mäkinen, 1974b; Vestre, 1976; Holdaway, 1978; Kyriacou & Sutcliffe, 1978b; Nikkanen, 1978; Ruohotie, 1980).

According to one of the NEA surveys (National Education Association, 1968), the major concerns of U.S. teachers seem to be (a) insufficient time for rest and preparation, (b) large class size, (c) insufficient clerical help, and (d) inadequate salary. McLoughlin & Shea (1960) have found that the main dissatisfactions of Californian elementary school teachers are (a) excessive clerical work, and (b) supervisory duties, while those of the secondary teachers were (a) inadequate salary and (b) negative student attitudes toward learning.

Coates & Thoresen (1976), while reviewing some American studies separately for beginning and more experienced teachers, conclude that

(1) The beginning teachers' self-reported anxieties and concerns center around (a) their inability to maintain discipline in the classroom, (b) students' liking of them, (c) their knowledge of the subject matter, (d) what to do in the case of making mistakes or running out of material, and (e) how to relate personally to other faculty members, the school system, and parents.

(2) In the case of the experienced teachers, the chief sources of teacher anxiety relate to (a) time demands, (b) difficulties with pupils, (c) large class enrollments, (d) financial constraints, and (d) lack of educational resources.

In the United Kingdom, Dunham (1976) discusses the major stressors under the headings (a) reorganization (leaving the security of the earlier small schools, working in large schools, teaching pupils with a wider range of abilities and attitudes than earlier; all these as consequences of the introduction of the new comprehensive schools in the U.K.), (b) role conflict, and (c) unsatisfactory material working conditions. According to an earlier British study (Rudd & Wiseman, 1962), the main sources of dissatisfaction were (a) teacher salaries, (b) poor human relations among staff, (c)

inadequate school buildings and equipment, (d) teaching load (e) teacher training, (f) large classes, (g) feelings of inadequacy as a teacher, (h) more time needed, and (i) the social status of the profession.

Klason (1971) classifies the positive aspects of the work reported by Swedish teachers into the clusters (a) positive values inherent in the pupil contacts, (b) positive cooperation within the staff, (c) positive characteristics of the school as a work organization, and (d) satisfying contacts with parents. The main clusters of the negative work experiences were (a) work load, (b) ´watch-keeping´ duties, (c) unattainable goals, (d) inadequate pupil behaviour, (e) lack of democracy at the work place.

Vestre (1976) reports that the major sources of dissatisfaction among Norwegian teachers are (a) frequent reforms in the schools, (b) large classes, and (c) unmotivated pupils, while the major sources of satisfaction were (a) good staff relations, (b) motivated pupils, and (c) good teacher-parent relations.

As to Finnish teachers, Gröhn (1979) classifies the ´problematic school situations´ (as revealed by the critical incidents technique) into the categories (a) planning of instruction, (b) organizing the classroom work, (c) watch-keeping duties, (d) classroom discipline, and (e) cooperation with other adults. Mäkinen (1974b) reports that teacher concerns cluster around the factors (a) school administration, reorganization and public opinion, (b) work load, (c) pupils and discipline, (d) staff relations, (e) one´s own fitness, (f) material resources and working conditions, (g) salary, and (h) pupils´ motivation to learn. All the clusters except ´one´s own fitness´ and ´staff relations´ contain single items which are rated to be very serious sources of stress. Among the single items, class size turns out to be seen as the most serious stress factor. On the other hand, class size correlates with most of the other items and cannot be included within any one of the clusters. -Rather similar results are reported also by Nikkanen (1978) and Ruohotie (1980).

Most differences in the results seem to be explained by the following factors: (a) Differences in the focus and details of the interviews (eg. whether these are focused on the profession-in-general or on the daily work at school, or what items are included in the lists of concerns). (b) The specific context of collecting the data (eg. staff development conferences for teachers or meetings organized by teacher unions) apparently has some effect on what the subjects deem to be appropriate to reveal about their working situation. (c) Many time-specific features of the total situation where the studies are conducted (eg. the current discussion themes in the community, related, for instance, to major school reforms).

Broadly speaking, however, the results from different times and countries tend to be quite similar, especially so when summarized in a general enough form. This, of course, is not very surprising: the general working setting of

teachers is quite universal; it contains interaction with pupils (in order to teach and bring them up), with other teachers, pupils' parents, school administration, dependence on the school buildings and some educational resources, etc. In effect, we get a very common sense list of the phenomena encountered by a teacher as a teacher.

By their very nature, these studies represent explorations into the subjective or perceived worlds of teachers, or, more accurately, into what the teachers (in the specific research situation) are able and willing to report about experiences and interpretations concerning their work and worries.

The results obtainable in this way can be interpreted to reflect the perceived stressors as well as the alarm and/or defensive/coping responses to stressors of unknown origin. Furthermore, the results may reflect teachers' implicit interpretations concerning the causal structure of their working environment: for instance, when reporting that large class size were a stressor one might imply that it is a cause of a large work load or that it is a cause of discipline problems in the classroom.

2.3.2 Case studies on teacher stress

A portion of the studies on perceived stressors already mentioned are close to clinical case studies in their style, in that the importance of the stress sources is, in effect, evaluated by the researcher rather than by the subjects themselves (Fountain, 1975; Lortie, 1975; Dunham, 1976; 1977; 1981; Ahlin & Jonsson, 1979). As such, they might be regarded also as attempts at an objective analysis of the processes and causality involved in the development of stress in individual teachers. This type of study is even more directly represented by clinical and psychiatric studies on severe cases of stress among teachers seeking help, eg., from personnel psychiatrists (Solomon, 1960; Bower & Greenfield, 1973; Brodsky, 1977; Bloch, 1978).

The results of these studies (or the opinions of the expert authors of the articles) rather uniformly underline the threats, frustrations, and physical and/or psychological assaults sometimes comprised by teacher-pupil interaction in schools. Berlin (in a contribution to Solomon, 1960) discusses the feelings of guilt and anxiety and the threats to a teacher's self-esteem caused by work with disturbed pupils. Big classes containing pupils with behaviour problems as well as repeated threats of assault are underlined by Bloch (1978) as major causes of psychiatric disturbances among teachers, especially when combined with non-supporting colleagues and principals. The school is described as one of the battlegrounds of society where teachers are in the front line with less preparation and armament than, for instance, policemen and prison guards.

The frustrations caused by discipline problems and related phenomena are usually not among the stress situations mentioned most frequently by teachers in survey

studies. Regardless of this, they apparently are very essential factors contributing to the most severe cases of stress among teachers; especially so when combined with specific personality characteristics of the teacher himself: over-socialization (Brodsky, 1977), over-internalization of incompatible expectancies (Solomon, 1960) or inability to cope with anxiety (Bloch, 1978). It is possible that milder cases of dissatisfaction are connected with factors of a more impersonal kind which are less threatening to the self-esteem of the teacher. According to Ahlin & Jonsson (1979), teachers who did not visit the personnel psychologist reported different sources of stress than those who made use of this opportunity to discuss their work problems: the former tended to blame organizational factors and school authorities as sources of stress while the latter more often mentioned problems related to teacher-pupil interaction.

2.3.3 Correlative 'causes' of stress among teachers

Most correlational studies on stress and well-being among teachers can be classified into one or more of the following three types:
(1) Studies exploring the correlations between the perceived stressors, on the one hand, and some more general measures of satisfaction, stress or other variables interpretable as end-states possibly produced by stress, on the other.
(2) Studies relating some objective variables about (a) the individual or (b) the work, school and other environment with measures of perceived stressors.
(3) Studies (partly epidemiological) where general measures of stress and well-being are studied as correlates of the objective variables mentioned above.

2.3.3.1 Perceived stressors as correlatives of well-being

As to the causal interpretation of the correlative results, the type (1) studies are the least conclusive, especially so when the 'dependent' variables have been measured by subjective ratings of 'the stressfulness of being a teacher' or of generalized job satisfaction (eg. Buerkens, 1973; DiCaprio, 1974; Behrman, 1976; Holdaway, 1978; Kyriacou & Sutcliffe, 1978b and 1979). The basic problems connected with correlational studies are, of course, present also in studies with behavioural or psychosomatic 'dependent' variables (intention to leave teaching, sickness absences or stress symptoms, as is the case eg. in Slick, 1974; Coller, 1975; Douglas, 1976; Schroeder, 1977; Halttunen et al., 1978; Nikkanen, 1978; Kyriacou & Sutcliffe, 1979).

As to the content of the results, the following conclusions seem warranted (in the case of the 'type (1) studies'):

(a) The measures of perceived stressors, conflicts or dissatisfactions tend to be related to the subjective

stressed-dissatisfied criteria more strongly than with behavioural or health criteria. As an exception, however, Slick (1974) reports rather strong correlations (up to .40) between absence frequency and various sub-scales of the Purdue Teacher Opinionnaire.

(b) Almost all of the perceived stressors studied (including teacher-pupil relationships and discipline problems, staff relations, teacher-principal conflicts, teacher-parent relations, perceived work load, school buildings and facilities, salary, status and community relations) have been shown to be related to at least some of the dependent variables. The results, however, are rather inconsistent and also vary (besides being a function of the type of 'dependent' variable) in very similar studies: for instance, the connections between sickness absences and the Purdue Teacher Opinionnaire reported by Coller (1975) are much weaker than those reported by Slick (1974).

(c) The relative sizes of the correlations between the perceived stressors and the criterion variables do not necessarily follow the frequencies of how many teachers regard the corresponding items as serious sources of stress. Some items (eg. large classes) are claimed to be serious stressors more often than some others (eg. maintaining class discipline) although the latter ones turn out to be more strongly related to self-reported stress (Kyriacou & Sutcliffe, 1978b).

(d) Despite the inconsistencies of the results, the perceived quality of the interpersonal relations connected with the instructional situation (ie. the classroom interaction) seems to be the most stable correlate for self-reported stress and job satisfaction (Behrman, 1976; Halttunen et al., 1978; Holdaway, 1978; Kyriacou & Sutcliffe, 1978b). Perceived work load and time pressure seem to be another important factor contributing to self-reported stress (Halttunen et al., 1978; Kyriacou & Sutcliffe, 1978b).

Furthermore, generalized job satisfaction, intention to leave teaching and sickness absences tend to relate also to satisfaction with salary, status and the career structure as well as with perceived relationships with the principal and school officials (Louhimo, 1969; Buerkens, 1973; DiCaprio, 1974; Behrman, 1976; Kyriacou & Sutcliffe, 1979).

(e) The correlations of specific perceived stressors with the criterion variables seem to depend eg. on the age and teaching level of the teacher. Kyriacou & Sutcliffe (1979) show that stress and job satisfaction are highly correlated among younger (less than 30 years old) teachers while the correlation between stress and sickness absences is high among older (45 years old or older) teachers. Grace (1972) reports that older British teachers, although more aware of the role conflicts of the profession, tend to be bothered by these conflicts less than younger teachers. According to

Halttunen et al. (1978), perceived general stress is among Finnish elementary school teachers mainly related to the perceived work load while stress among the secondary school teachers tends to correlate more strongly with difficulties in pupil relations and insecurities connected with the school reform and the social status of the profession.

2.3.3.2 Objective correlatives of well-being

Studies belonging to types (2) and (3) - as defined at the beginning of this section - are somewhat easier to interpret in terms of cause and effect: when 'objective' characteristics of a person or his work and working conditions can somehow be shown to be related to his perceived stresses or other well-being and health variables, it is usually more probable that the former present 'causes' for the latter than vice versa. Apart from the fact that this only 'usually' is the case, many other problems are also encountered in interpreting these types of results. In this connection, the most essential problems are those connected with the causal distance between the independent and dependent variables.

2.3.3.2.1 Characteristics of school and work

It would be quite understandable when actual class size, teaching load or preparatory work done at home were related to reported concerns about class size, work load or discipline problems. The empirical findings seem, however, to suggest that such direct correlations tend to be very low: feeling stressed is more related to how large and difficult the work load is felt to be than to the objective measures of the work (National Education Association, 1967; Coates & Thoresen, 1976; Aronen et al., 1978; Halttunen et al., 1978). Quantitative work load (hours worked outside the classroom) seems to have some effect on the home life of teachers (Aronen et al., 1978).

Clearly, more complicated interpretational problems are connected with results concerning the effects of school size on satisfaction and well-being among teachers. The results indicating some negative effects of big schools (Fraser, 1970; Klason, 1971; Vestre, 1976; Nikkanen, 1978; Ruohotie, 1980) seem to raise a series of new questions: What is involved in terms of administrative procedures, leadership, staff relationships, organization of work, class size, work load, specialization etc., or in regard to pupil behaviour, learning motivation, discipline, teacher-pupil and teacher-parent relationships? Furthermore, what extraneous factors are involved because of the fact that, for instance, bigger schools tend to be located in different communities and local environments than small schools (Käppi, 1968; Fraser, 1970; Vaherva, 1974)?

2.3.3.2.2 Community and local environment

As to the community and local environment, urban teachers tend to be somewhat less satisfied than rural teachers (Klason, 1971; DiCaprio, 1974; Douglas, 1976; Hafford, 1976; Vestre, 1976). According to Pratt (1978), teachers of children of a lower socioeconomic background are more stressed than those of wealthier school districts. Koskinen et al. (1979, analysing part of the empirical material to be used also in this study) explored some of the relations between the local environment, school, social relationships and interaction within the school, and teacher-parent relationships. Although not very successful in analysing the complexity of the relations, they found two significant canonical correlations between the community variables and the social relationships: the first one suggests that urban environments tend to be associated with better (or more active) teacher-teacher and teacher-parent relations while the second one relates small rural communities to better teacher-pupil relations.

2.3.3.2.3 Teaching level and the age of pupils

Teaching level and the age of pupils taught have also been repeatedly shown to have some effect on the well-being of teachers (Charters, 1970; Fraser, 1970; Klason, 1971; Mäkinen, 1974b; Hafford, 1976; Pratt, 1978). Typically, elementary school teachers are somewhat more satisfied than secondary school teachers. A thirty year old study by Wandt (1952) demonstrates that the attitudes of elementary teachers toward pupils, parents, colleagues and democratic classroom practices are more favorable than those of secondary teachers. The rate of sickness absence, however, has been shown to be the highest among elementary teachers and the lowest among high school teachers (Coller, 1975).

The number of variables confounded with the teaching level apparently exceeds that of the factors explaining or mediating the effects of school size or local environment. Dreeben (1976, 860), discussing American schools as organizations, says that "the one dimension of organization on which schools manifest the greatest structural differences is level." Elementary schools, as compared to secondary schools, are smaller, much less departmentalized and less differentiated. The administrative hierarchy tends to be flat. An overwhelming proportion of teachers are women, and men teach mainly in the upper grades. The average teaching load is higher but the nature of the load differs from that of secondary teachers. The intensity and frequency of contact between teachers and pupils differs markedly at the two levels primarily because elementary teachers and their pupils remain together for most of each school day. In most respects, this holds true also in the case of the Finnish school system.

Many differences between the levels may contribute to the fact that secondary schools, if compared with elementary schools, tend to be more bureaucratic and closed (eg. in

regard to their task structure and interpersonal relationships as discussed by Blichfeldt, 1975). On the other hand, it has been shown (McIntire & Drummond, 1975) that secondary teachers more than elementary teachers are in favor of bureaucratic organization and principles (subordination, impersonalization, rule conformity, and traditionalization). Thus, although secondary teachers are possibly not dissatisfied with their bureaucratic schools, many other consequences might be implied. For instance, Corwin & Wagenaar (1976) show that (a) the more formal and centralized the school, and the more unionized and better qualified the teachers, the less contact there is between parents and teachers, and (b) the amount of teacher-parent conflict increases with greater formality in the school and higher educational level among the teachers.

Many further differences between the school levels are self-evidently implied by the age and age-connected behaviour of the pupils. In addition, school attendance is mandatory (in Finland) for pupils of the comprehensive school (where the first six grades form the elementary school and the last three grades form the comprehensive - or lower - secondary school). On the other hand, attendance of the upper secondary school is voluntary and the pupils are enrolled more or less selectively.

Further teaching level differences are apparently caused by differences in the socioeconomic status and prestige of their teachers. During the binary school system (up to the 'seventies) these differences seem also to have been exceptionally large in Finland between elementary teachers and lower secondary (middle school) teachers (Alestalo & Uusitalo, 1978). It is very probable that the introduction of the comprehensive school system as well as reforms of the teacher training system are very slow and ineffective in reducing these differences (as is demonstrated in Great Britain by Bergbaum et al., 1969). One can, however, expect that the reform has caused great status insecurity and confusion especially among teachers of the comprehensive secondary school which, in all respects, was the one affected most by the reform.

In conclusion, it seems highly probable that - in addition to many direct differences between the school levels - the whole structure of the determination of well-being among teachers varies as a function of the school level.

2.3.3.2.4 Personal and professional background

Similarly, many epidemiological findings concerning the 'effects' of age, sex, marital status, education, work experience etc. are in need of further interpretation and explanation.

A majority of the studies on the effects of age (often confounded with work experience) point to the conclusion that younger teachers tend to be more stressed and dissatisfied and exhibit higher rates of sickness absence

and turnover than older teachers (Charters, 1970; Price, 1970; DiCaprio, 1974; Hafford, 1976; Coller, 1975; Holdaway, 1978; Bloland & Selby, 1980). In effect, teacher stress is sometimes conceptualized as a special problem of inexperienced younger teachers (Fuller, 1969); and Simpson (1962 and 1976) tends to interpret the high absence rates among young teachers rather directly as an expression of stress avoidance behaviour. In the case of absences and turnover, however, the results are confused by contradictory tendencies. The age differences in sickness absence are not specific to teachers (Nyman & Raitasalo, 1978). On the other hand, no age differences in self-reported stressors and satisfactions were found by Nikkanen (1978) and many studies report different types of self-reported problems for different age or experience groups, as already noted (Coates & Thoresen, 1976; Gröhn, 1979).

The results concerning the sex of the teacher also turn out to be inconclusive. Most results tend to suggest a somewhat better satisfaction among female than male teachers - possibly partly because of the fact that the profession ranks socioeconomically much better among occupations typical for females than among males´ occupations (Price, 1970; DiCaprio, 1974; Lortie, 1975; Hafford, 1976). It must be noted, however, that the rate of sickness absence tends to be higher among female than male teachers (Coller, 1975) as is the case also in other occupations (Nyman & Raitasalo, 1978). It is also quite understandable that the sex differences depend on the specific satisfactions studied (Nikkanen, 1978; Mäkinen, 1974b). It seems possible in Finland that male teachers are more concerned with their social status while females are more concerned with their work load and interpersonal relationships at school. In addition, it has to be taken into account that sex differences in, for instance, the subjects taught, family situation or work load are usually left uncontrolled when comparing the well-being of the sexes.

Marital status and family situation belong to the variables where also the direction of causality is problematic. Some studies on teachers - as with other occupational groups - suggest that married people show in many ways better well-being and satisfaction than single persons (Powell & Ferraro, 1960; Coller, 1975; Hafford, 1976). Mäkinen (1974a), however, found practically no marital status differences in psychological and psychosomatic well-being among Finnish female teachers. As such, marital status might be expected to have an effect on, eg., social support and work load, especially in the case of females with small children. Ridley (1973) has shown that among married female teachers, marital satisfaction is positively related to job satisfaction, especially in cases where the work role is regarded as being salient.

2.3.4 Empirical structural models of teacher stress

The research thus far reviewed tends to leave one rather confused in regard to what is interconnected with what or, more specifically, in what order the interconnections revealed should and could be put together. In effect, and as long as relevant longitudinal studies are not available, this remains to be answered only on theoretical or speculative grounds. One new type of study, based on recent developments of statistical multivariate analysis (Jöreskog & Sörbom, 1978), can be referred to at this point: studies applying path analysis of latent variables which are composed of relatively large numbers of observed variables. The first attempts in this direction are represented by the Swedish contribution to the NORDSTRESS teacher study (Brenner et al., 1979 and 1981; Löfgren, 1980). In these studies, a set of single variables (describing the local community, teacher, teacher's perceptions of his pupils, colleagues and superiors, as well as a variety of variables describing the perceived stress, well-being and health of the teacher) are ordered into a sequence of blocks, and the order of the blocks is based on a hypothetical model of their causal relations. In effect, the methods of analysis do not allow for the testing of the causal model, but what is possible is to check how well the structure of the empirical correlations between the variables corresponds to the hypothetical model chosen. The main results from LISREL analyses on a nationwide Swedish sample are the following (Brenner et al., 1979 and 1981):

(a) As final dependent variables, sickness absences, somatic stress symptoms and psychic stress symptoms are rather strongly explained by (or related to) a general self-rating of one's somatic and mental health. The latter two variables are strongly related to a general self-rating of strain at work. In addition, sickness absences are directly related to sex (females more absent than males).

(b) The two measures of general job satisfaction (considering a change of occupation and regretting one's choice of occupation) are both related to self-reports on strain at work. The weak effects of age suggest that older teachers tend to regret their occupational choice more than younger teachers, while thoughts of leaving the profession are more common among younger teachers.

(c) With the exception of age and sex, the effects of all other 'independent' variables of the study upon the measures of health and satisfaction turn out to be mediated by effects on the self-reported strain at work.

(d) Self-reported relations with pupils and strain felt to be caused by the pupils form the major correlate of strain at work. In addition, time strain and perceived social esteem of the profession also contribute to self-reported strain at work.

(e) Time strain is weakly (and negatively) related to perceived possibilities of influencing one´s own work which, in turn, are related to perceived relationships to school management.

(f) Perceived possibilities of influencing one´s own work are strongly related to interpersonal problems with management and colleagues which, however, are not related to the perceived strain at work or other generalized health and well-being measures.

(g) The urbanness of the community and local environment are somewhat related to teacher-pupil relationships.

Brenner et al. (1981) also compare the LISREL structures computed simultaneously for five sub-groups of their subjects (junior level grades 1-3 teachers, middle level grades 4-6 teachers, practical subject teachers, special education teachers, and subject teachers). The differences turn out to be small and difficult to interpret. It seems, however, that the pupil-related sources of stress tend to become more important in the upper forms, while lack of time is more important in the lower ones. This, in effect, accords well with the results of Halttunen et al. (1978) mentioned earlier. In addition, four of the five groups show a significant association between satisfaction with staff relations and thoughts about leaving the profession. Very small differences are reported to be found by corresponding comparisons between the sexes.

Rather similar results are reported by Löfgren (1980) who conducted a similar analysis on a sample of teachers from Malmö. The importance of pupil relations seems, however, to be even greater here than in the Swedish NORDSTRESS study. On the other hand, no significant effects of time strain were revealed. Instead of this, Löfgren´s results show some direct connections between principal and staff relations and psychic stress symptoms. In addition, some quite strong connections between the local environment, on the one hand, and pupil relations, perceived social esteem of the profession and teacher-management relations, on the other, are revealed, especially among teachers of grades 1 to 6.

As to their content, the results of these path analytical studies are very comparable with those of the more simple correlational studies reviewed earlier. What is added is that the single interconnections are now integrated into a meaningful whole.

Of course, the patterns of interconnections revealed by these analyses also depend on the selection of variables included within the model. Many obviously important clusters of variables seem to be lacking from the studies by Brenner et al. and Löfgren: variables representing the community, local environment and school are global and few in number (eg. school size is left out), the personal background situation of the subjects is represented only by age and sex, and the composition of work load and time budget are

excluded.

In principle, however, the results seem to be very promising, and the method of analysis can be expected to be very useful for building up a more comprehensive model of teachers' well-being. Thus far, the Swedish studies have mainly concentrated on the interconnections between perceived stressors and some more generalized measures of health and well-being. The model is in need of an extension where a more systematic set of objective determinants and indicators of stress and well-being are included. A promising set of guide-lines for such a further development seems to be presented by Jenkins' model of stress.

3 PROBLEMS

As an attempt to restructure the previous research findings on teachers' well-being and as an application of the reformulation of Jenkins' stress model, this empirical study aims at a multidimensional description, evaluation, and analysis of
-sociocultural relations,
-interpersonal relations,
-job satisfaction,
-psychological well-being, and
-stress and health
among comprehensive school and upper secondary school teachers in Finland. The independent variables of the study include measures of the
-local environment and school,
-personal and professional background, and
-composition of work and time budget.

In the first phase (Chapter 5), a general description and comparison of teachers of different school levels will be given. The groups to be described and compared with each other are
-teachers of grades 1-3 of the comprehensive school,
-teachers of grades 4-6 of the comprehensive school,
-teachers of grades 7-9 of the comprehensive school, and
-teachers of the upper secondary school.
Besides aiming at an evaluation and comparison of the well-being of the teaching level groups, the section will also contain corresponding comparisons in regard to the independent variables.

In the second phase (Chapter 6), the study explores the path relations between the research variables. The final aim is to describe the correlational determination of the variance in psycho-social, psychological, and psychosomatic well-being by variation in the background situation and work of teachers.

The path relations are assumed to reflect a part of the causal relationships which prevail between the social, organizational, interpersonal and intrapersonal systems represented by the research variables. By analysing the path relations, we aim at a macro-model of the well-being of individual teachers - at a model where phenomena of a more general and objective level are studied as predictors (direct and/or indirect) of the well-being of an individual. Partly as a control procedure and partly as a further research problem, the path structures are studied separately for the four teaching level groups and compared with each other.

4 RESEARCH MATERIAL

4.1 Questionnaire

The questionnaire for this study (Appendix 1) contains the following sections: A. Background information on the respondent, B. Information on the municipality and the school, C. Teaching, D. Collaboration and social relations, and E. Job satisfaction, well-being and health. Only a brief description of the content of the questionnaire is given here.

A. Questions 1 to 14 inquire about the respondent´s age and sex together with education and professional history, family situation, day-care of children, and status as the family breadwinner.

B. Questions 15 to 34 include items concerning the municipality (population, level of unemployment, year of the local school reform, growth of population), items concerning the school district (occupational structure, density of population), and items concerning the school (school size, components of the school complex, age of the school buildings, respondent´s satisfaction with certain school rooms and with the physical working environment). In addition, a few questions (not analyzed in this study) are asked about the local language situation.

C. Questions 35 to 64 under the heading Teaching include, firstly, items on professional position, teaching level and teaching subject. The second group of these questions are about the content and nature of the respondent´s daily work: number of pupils taught by him/her, number and size of teaching groups, number of subjects and number of different courses. Thirdly, a series of items is included that inquire about the hours per week spent on the different aspects of work, about the amount of out-of-class work done at home on weekdays and at weekends. In addition, there are some questions concerning the respondent´s satisfaction with his/her schedule, with certain teaching materials and facilities, as well as questions about various factors regulating his/her daily work.

D. Questions 65 to 79 inquire about the amount of and the satisfaction with various forms of collaboration and social relations (teacher/parent, teacher/teacher, teacher/headmaster, teacher/pupil, and pupil/pupil). There are questions on misbehaviour among pupils, on perceived possibilities of influencing the work situation and on the amount of support and help received from different sources inside and outside the school.

E. Questions 80 to 100 include three types of item. One group of these aim at measuring satisfaction vs. dissatisfaction toned feelings more or less directly related to work - difficulties in different duties, optimism vs. pessimism regarding future prospects in work, tiredness in work, and willingness to continue in teaching. Secondly,

there are two series of items that, in addition to work, inquire about activeness and vigour in non-work fields and satisfaction with / alienation from the family life and leisure time. The rest of the questions inquire about common psychosomatic symptoms of stress, general state of health, sickness absences, and use of medicines.

All together, the questionnaire contains 100 numbered questions with 347 item level variables. Almost all the items are structured and presented with fixed response alternatives.

4.2 Population and sample

The population of the study consists of the members of the teachers´ trade union, the OAJ, which practically speaking includes the teachers of the comprehensive school, the upper secondary school and other Finnish-speaking schools comparable with these. According to the national school statistics (Central Statistical Office of Finland, 1979a), the number of teachers of all these schools was (autumn 1977) 41,454, while the membership of the OAJ was (March 1978) 38,282, i.e. 92.3 per cent of the total number of teachers. The difference is mainly explained by the relatively low rate at which hourly-paid teachers get organized: the number of these was (according to the statistics) 5,329 and only 2,071 of them were members of the OAJ.

Originally, a systematic sample (every 14th name) of 2,734 persons was drawn from the member register of the OAJ. For practical reasons (shortage of questionnaires available) this sample was reduced to 2,618 persons by randomly dropping out 116 persons.

4.3 Collection of data

The questionnaire, together with a letter signed by the chairman of the teachers´ trade union OAJ and a pre-paid envelope for returning, was posted to the persons of the final sample on 18th April, 1978. The subjects were asked to return the questionnaires - to be kept completely anonymous - ´as soon as possible, if possible within seven days´ to the Department of Psychology, University of Jyväskylä.

Due to the principle of anonymity, all persons in the sample were posted another copy of the questionnaire on the 7th of May, 1978. The letter enclosed emphasized the importance of answering and requested those who not yet had returned the form to do this ´as soon as possible´. (In effect, the subjects could have answered the questionnaire twice. However, it is believed that nobody did so because of the length and laboriousness of the questionnaire.)

In order to inform and motivate the subjects, a series of articles were published in the official journal of the OAJ (Opettaja = Teacher) before and during the data collection. These articles appeared on 17th February, 7th and 14th April, and 19th May, 1978.

In terms of the Finnish school year, the data collection fell on the last weeks of the spring term, the summer vacation beginning on 1st June. This may have had some effect on the rate of return as well as on the working atmosphere and the answers of the teachers. - The research material consists of the questionnaires returned before 7th June, 1978.

4.4 Rate of return and representativeness of the material

Information on the rate of return is given in Table 2. The effective rate of return is 74.5 per cent and the drop-out rate because of unknown reasons is 23.1 per cent.

Table 2. Rate of return

	N	per cent of 2,618
Address error, returned by post	8	0.30
Returned unanswered (pensioned, not a teacher)	4	0.15
Incompletely answered	52	2.00
Acceptably answered (=final material)	1,949	74.45
No return (=unknown reason for dropping out)	605	23.11
Total	2,618	100.00

As to the main teaching level (lower level of the comprehensive school, upper level of the comprehensive school, or upper secondary school), a comparison is made between the final research material and the total membership of the OAJ teaching at these levels in table 3.

It appears that the difference reaches the level of statistical significance, and the upper level of the comprehensive school seems to be somewhat under-represented in the sample.

In order to evaluate further the representativeness of the material, the following three groups were identified on the basis of the time of returning the questionnaire:

Table 3. Main teaching level distribution among the membership of the OAJ and among the subjects in the research material

Main teaching level	OAJ membership	Research material
Lower level	52.6	54.2
Upper level	36.4	33.7
Upper secondary	11.0	12.1
Total	100.0	100.0

Khi square = 6.28, df = 2, $p < .05$

I: The first 200 subjects who returned the form within the first seven days of data collection,
II: 200 subjects who returned the form during the week preceding the posting of the second inquiry, and
III: The last 200 returners of the inquiry.

These groups approximate to the first, the seventh, and the tenth tenths of the subjects. Associations of the returning were calculated with 14 variables describing the municipality (population, growth of population, year of school reform), the school and position (number of pupils, number of classes, school levels in the school complex, teacher position, teaching level, and main subject), and the person (sex, age, marital status, number of own children, education). A summary of the results is given in Table 4. Only one of the background variables studied, population of the municipality, shows significant ($p < .05$) association with the time of returning: teachers who work in municipalities with less than 60,000 inhabitants returned the questionnaire somewhat faster than those working in larger municipalities. In addition, insignificant trends are seen in the variables Year of school reform ($p = .06$), Teacher position ($p = .09$), and Teaching subject ($p = .08$): Teachers from municipalities with delayed school reform, teachers employed by the hour, and teachers in practical and aesthetic subjects returned the questionnaires somewhat slower than other teachers. The strength of these associations (including that of the size of municipality) is, however, very weak; the uncertainty coefficient UC varies between .01 and .02.

To sum up, the final research material (accepted questionnaires) represents relatively closely the population of the study (the membership of the OAJ) as regards the biographical variables, municipality, school, and general descriptors of position and work.

Table 4. Time of returning the questionnaire in relation to certain background variables

Background variable	Strength of association		Significance	
	UC	R-sq	p(Khi)	p(F)
Municipality:				
Population	.01		.05	
Growth of population	.00		.42	
Year of school reform	.02		.06	
School and work:				
School: number of pupils		.01		.14
School: number of classes		.01		.11
School levels in the complex	.01		.43	
Teacher position	.02		.09	
Teaching level	.00		.74	
Teaching subject	.01		.08	
Person:				
Sex	.00		.50	
Age		.00		.41
Marital status	.00		.97	
Number of children		.00		.88
Education		.01		.43

Teachers of the upper level, those employed by the hour and teachers in practical/aesthetic subjects as well as teachers from bigger municipalities with delayed school reform are somewhat under-representated in the material. The degree of this under-representation is, however, low and apparently of very small importance. The material is deemed to represent relatively accurately all Finnish teachers working on a regular full-time basis in the Finnish-speaking schools for general education; those teaching by the hour are clearly under-representated.

5 GENERAL DESCRIPTION OF TEACHERS OF DIFFERENT SCHOOL LEVELS

Teachers' background situation, working conditions and well-being are described in this section. As noted in the review of earlier studies, one basic dimension differentiating teachers is the grade level of his/her pupils. In all the descriptive results that follow, the subjects are classified according to the school levels where they give most of their lessons. The classification is into three-grade groups as shown in Table 5.

Table 5. Teaching level classification of subjects

Teaching level group	Number of cases
Group COMPREH 1-3: Teachers of grades 1-3 of the lower level of the comprehensive school	474
a) teaching only in grades 1-3 of the lower level	167
b) teaching mainly in grades 1-3, some teaching in other grades (usually grades 4-6)	307
Group COMPREH 4-6: Teachers of grades 4-6 of the lower level of the comprehensive school	584
a) teaching only in grades 4-6 of the lower level	278
b) teaching mainly in grades 4-6, some teaching in other grades (usually grades 1-3)	306
Group COMPREH 7-9: Teachers of grades 7-9 of the upper level of the comprehensive school	658
a) teaching only in grades 7-9 of the upper level	444
b) teaching mainly in grades 7-9, some teaching in other grades (usually in the upper secondary school)	214
Group UPPER SEC: Teachers of the upper secondary school grades I-III	233
a) teaching only in the upper secondary school	125
b) teaching mainly in the upper secondary school, some teaching on other grades (usually grades 7-9 of the upper level of the comprehensive school)	108
Total number of cases	1949

The section is divided into sub-sections that deal

separately with variables concerning
-Municipality, school district and school,
-Personal and professional background,
-Organization and composition of work,
-Cooperation and social relations in work,
-Satisfaction with and well-being in work, and
-Psychosomatic stress symptoms and health
The order of presentation roughly follows the structure of the research questionnaire presented in Appendix 1.

Most of the results have been previously reported in Finnish elsewhere (Mäkinen, 1980a and 1980b; Mäkinen & Penttonen, 1980). Moreover, part of the results for the three groups of comprehensive school teachers have been reported comparatively - together with corresponding results for Danish, Norwegian and Swedish comprehensive school teachers - in a series of previous reports (Lundberg, 1980b; 1980c; 1980d; 1981) in Swedish.

This being the case, a summary of the results will be given here and most of the numerical details are omitted. The marginal frequencies for all items of the questionnaire, however, are given in Appendix 1 and the discussion will be partly based on these. A detailed description of the construction of the final research variables is given in Appendix 2. These are used later for analysing the path structure of their correlative associations and, at this point, for comparisons of the means of the four teaching level groups. For this latter part, the discussion will be based on Appendix 3 which contains the group means and standard deviations together with the results of one-way analyses of variance, tests of the homogeneity of variances as well as a priori comparisons of group means, all this in 88 separate tables for the 88 variables. Not all of the information contained in Appendices 1 through 3 will be treated in the text. On the other hand, minor parts of the text are based on numerical results which are not contained in the Appendices. This is the case mainly with the comparisons of the teaching level groups on certain qualitative variables where the text is based on Mäkinen (1980b).

The main aim of the following discussion is to illuminate general similarities and differences in Finnish teachers of different school levels and, by so doing, to present background information to be used when studying and interpreting the structure of the correlative relations between the research variables later in this report. Further, some comparisons of the results with those from the parallel studies in Denmark, Norway and Sweden are inserted at the end of the sub-sections.

5.1 Municipality and school

As to the geographical distribution, the teaching profession is quite exceptional: the teachers working in general education are very evenly scattered all over the country. The variation in the general living environment among teachers corresponds to that of the whole nation. This holds true especially in the case of the lower level teachers: The primary schools are located near pupils' homes while the secondary schools, especially the upper secondary schools, tend to be located in the centers of settlement.

22 % and 20 % of the lower level teachers (groups COMPREH 1-3 and COMPREH 4-6, respectively) work in municipalities with less than 5,000 inhabitants as compared with 14 % of the upper level teachers (group COMPREH 7-9) and 7 % of the upper secondary teachers. On the other hand, 20 % of the two groups of lower level teachers, 24 % of the upper level teachers and 31 % of the upper secondary school teachers work in municipalities with more than 60,000 inhabitants.

The same phenomenon is reflected by the density of population in the enrollment areas of the schools: 37/39 % of the lower level teachers, 19 % of the upper level teachers and 13 % of the upper secondary teachers describe their school district as being sparsely populated (category 1 in Q21, Appendix 1). A densely populated school district with blocks of flats (response alternatives 5 and 6 in V4, Appendix 2) is reported by 14/15 %, 18 % and 22 % of the four groups of teachers (the figures are given in order from group COMPREH 1-3 to UPPER SEC).

Finland (together with Italy) is one of the European countries which has undergone an extremely rapid urbanization, industrial change and migration since the fifties. Accordingly, only one third of all teachers worked in municipalities with a stable population (Q17 in Appendix 1). 27 % worked in communities with a decreasing population and 40 % in turbulent or increasing municipalities. Almost identical distributions on this variable are shown by the three groups of comprehensive school teachers. By comparison, a higher proportion of the upper secondary teachers (42 %) work in stable municipalities and a relatively low proportion (20 %) in municipalities with a negative net migration.

One possibly important but very time-specific dimension of the variation in the working environment of the Finnish teachers is represented by the year of the local transition to the municipal comprehensive school system (Q19 in Appendix 1, V3 REFOYEAR in Appendices 2 and 3). At the time of the data collection, 32 % of all teachers worked in school systems that were less than two years old (the year of reform being 1976 or 1977) while 19 % worked in municipalities that adopted the new system in 1972 or earlier (i.e. more than five years before the data collection). A somewhat smaller proportion of the lower level teachers (28 and 27 %) than of the upper level and upper secondary teachers (39 and 35 %) work in the

relatively newly established school systems of the municipalities with the delayed reform. There are proportionally more teachers of the upper school levels in the more developed municipalities with a delayed reform than in municipalities which were the first to adopt the new school system.

The mean of the number of pupils in a teacher´s workplace (V7 SCHOSIZE) is 328 with a standard deviation of 193 pupils. The mean size of a teachers work place is the smallest (and the variation in the school size is the greatest) among teachers of the lower level of the comprehensive school. 42/41 per cent of them work in schools of less than 100 pupils while only 2 per cent of the upper level or upper secondary teachers work in schools of this small size. On the other hand, up to 45 % of the group COMPREH 7-9 teach in schools with more than 500 pupils; the corresponding proportions for the three other groups vary between 17 and 21 %. The means of the school size are 234, 261, 462 and 308 pupils for the four groups from COMPREH 1-3 to UPPER SEC, respectively. The corresponding standard deviations are 236, 255, 214 and 193 pupils.

Besides often working in a very small school, the lower level teachers very often (87 resp. 86 % of the two groups) work in a single lower level school (which contains only grades 1 to 6 or only some of these, Q24 in Appendix 1). About 10 % of them work in school complexes that contain a lower level school and an upper level school located together. As to the group COMPREH 7-9, the most usual (for 47 %) work place is a school complex consisting of an upper level school and an upper secondary school. 23 % work in single upper level schools. The combination of an upper level school and an upper secondary school is even more typical among upper secondary teachers; 77 % have this type of work place and 12 % work in single upper secondary schools.

5.2 Personal and professional background

A majority (63 %) of all teachers are females. Among teachers of the lower level, sex strongly differentiates between teachers of the younger and older children to the extent that 91 % of the group COMPREH 1-3 are females while a majority of 66 % of the group COMPREH 4-6 are males. The groups COMPREH 7-9 and UPPER SEC, again, are dominated by females (66 and 67 %, respectively). These sex distributions (which are internationally somewhat exceptional) are partly due to the fact that equal quotas for both sexes have been applied in the training of teachers for the lower level while the university training of teachers of the upper level schools has been without sex quotas.

The means of age for the four groups are 40.7, 40.5, 38.7 and 40.0 years with corresponding standard deviations of 9.9, 8.7, 7.8 and 7.7 (for the groups from COMPREH 1-3 to

UPPER SEC, respectively). The upper level teachers are somewhat younger than the lower level teachers or the upper secondary teachers. On the other hand, a somewhat greater proportion of the lower level teachers than of the other two groups belong to the youngest age groups. Two facts apparently underlie these small differences: the upper level of the comprehensive school has been newly created by the school reform and this school level has hired most of the new teachers during recent years. Secondly, the shorter training of lower level teachers allows quite young persons (especially females without the delay caused by military training) to enter the profession of lower level teacher.

Almost all male teachers (92 %) are married as compared with 74 % among females. As to the teaching level, clear differences in the marital status can be seen among females but not among males. 78/81 % of the female teachers in the groups COMPREH 1-3 and COMPREH 4-6 are married as compared with 70 % of the females in the group COMPREH 7-9 or 64 % of these among the upper secondary teachers.

Of all teachers, 34 % have a family with one or more children who - because of age or for other reasons - need day-care. 36 % have only children who do not need day-care and 30 % have no children (living together with them). In accordance with the differences in marital status, there are proportionally more childless persons among the females (35 %) than among the males (21 %).

As to professional training, a clear differentiation between teachers of the different school levels can be seen (Q8). 82/80 % of the lower level teachers have received a class teacher qualification in teacher training institutes or faculties. On the other end, the upper secondary school teachers represent a professional group of university graduates: 86 % of them have the higher university degree (M.A., equivalent or higher) and 11 % have the bachelor's degree. An intermediate and heterogeneous group between the former two is presented by the group COMPREH 7-9. The most typical educational basis of this new group (created by the school reform) is (or was in spring 1978) the bachelor's degree (38 %), 27 % had the subject teacher training and 25 % had the higher university degree.

97 % of all teachers have received teacher training (Q9); the proportion of those without this training is somewhat greater among the groups COMPREH 7-9 and UPPER SEC (6 % and 4 %, respectively) than among the lower level teachers (1 %). One in three has taken the minimum of educational studies required for teacher qualification (as an integrated part of their teacher training in the case of the class teachers or during their teacher training year after the university studies in the case of the secondary school teachers). 64 % have taken additional studies in educational subjects. These extra studies are somewhat more common among groups COMPREH 7-9 and UPPER SEC (69 and 72 %) than among the lower level teachers (62 and 55 % in the two groups).

A time-specific aspect (connected with the time of the school reform) of the professional background of the

subjects is reflected by question Q36, an indicator of the position held by a teacher before his/her present position after the reform. Ten per cent of the subjects had started teaching after the reform and, thus, have no experience of the binary school system. A great majority (77 and 74 %) of the two groups of the lower level teachers were elementary school teachers before the reform. They continue in positions very similar to those they held earlier (as regards the employer organization, school and the pupils). Similarly, the background of the upper secondary teachers is quite homogeneous. Most of them have earlier been secondary school teachers (52 % of them in private secondary schools and 29 % in state-owned secondary schools). This implies, for instance, that they continue teaching groups of selected pupils as they did during the binary school system. Their socio-economic status and prestige has apparently remained on the relatively high pre-reform level. The administration of their schools, however, is somewhat changed by the fact that almost all upper secondary schools are now integrated into the communal school system.

In contrast to the lower level teachers as well as to the upper secondary teachers, the professional background of the upper level teachers (COMPREH 7-9) is very heterogeneous. 22 % of them come from the civic schools, i.e. they taught 'negatively selected' pupils who remained in the communal school during the binary system. 17 % taught in communal (lower) secondary schools, i.e. selected pupils in schools that belonged to the communal school system. 31 % were teachers in private secondary schools and 13 % in state-owned secondary schools. These two groups have apparently experienced the greatest changes during the school reform: they now teach unselected pupils in communal comprehensive schools instead of the selected pupils in private/state-owned schools (possibly of a somewhat higher status).

5.3 Organization and composition of work

As a general description of the work of teachers of the different school levels, the results concerning the main teaching subject, the number of subjects, the number of teaching levels, the number of different courses, the number of classes and pupils taught, and the size of the smallest and the biggest classes are summarized in what follows. In addition, the work load and time budget of teachers is described.

5.3.1 Teaching subject

As to the teaching subject (Q47), 90 % of the lower level teachers are class teachers who teach their pupils in (almost) all subjects. In addition, a small number of teachers of the mother tongue (more accurately, remedial teachers in reading and writing) work at this school level as well as some teachers of foreign languages and practical or aesthetic subjects, especially in the upper grades of the lower level (group COMPREH 4-6).

In contrast to the lower level, the teaching at the upper level as well as in the upper secondary schools is almost exclusively given by subject teachers specializing in one or in a few subjects. The differences between these latter two levels of school mainly reflect differences in the curriculum, not differences in the organization of teaching: the upper secondary school is very language-oriented to the extent that 43 % of the group UPPER SEC are teachers of foreign languages, 13 % are teachers of the mother tongue, 16 % teach mathematical subjects, 21 % the modern subjects and 5 % practical or aesthetic subjects. The upper level of the comprehensive school (group COMPREH 7-9) is less 'theoretical' to the extent that 33 % of the teachers of this school level teach practical/aesthetic subjects, 19 % the modern subjects, 18 % mathematical subjects, 16 % foreign languages and 10 % the mother tongue. - Some of the differences between groups COMPREH 7-9 and UPPER SEC seem to be caused by the inclusion of teachers that teach at both of these school levels: many teachers of foreign languages have most of their teaching at the upper secondary level, and they are, accordingly, classified here as upper secondary teachers although they also teach languages at the upper level of the comprehensive school. On the other hand, many teachers in the practical/aesthetic subjects have been classified as upper level teachers because they have most of their teaching at this level and a minor part of their teaching in the upper secondary school.

5.3.2 Number of courses and pupils

The number of subjects as well as the number of different courses taught also strongly differentiates the school levels. The mean number of subjects taught by the four groups (from COMPREH 1-3 to UPPER SEC) is 7.9, 8.6, 2.4 and 1.7 and the corresponding standard deviations are 2.0, 3.2, 1.9 and .7 (V26 in Appendix 3). At the lower level, one or two subjects are taught by 4 % of the group COMPREH 1-3 and by 10 % of the group COMPREH 4-6. Seven or more subjects are taught by 90 and 82 % of these groups. For most of the lower level teachers, the number of different courses taught coincides with the number of subjects.

At the two upper school levels, subject specialization is somewhat greater in the group UPPER SEC than in COMPREH 7-9; one or two subjects are taught by 89 % of the former group and by 69 % of the latter. As many as 45 % of the upper secondary teachers teach in one subject only. - The mean

number of different courses is 4.9 for the upper level teachers and 5.0 for the upper secondary teachers (V27 in Appendix 3). This implies that two or three different courses are usually taught in one subject: in other words, about one third or more of the teaching is 'redundant' - the same course is taught to 1.8 groups by upper level teachers and to 1.6 groups by the upper secondary teachers.

Besides the teaching contents, a teacher's work is essentially determined by the number and variation of the pupil and class contacts implied by the ways his/her work is organized.

52 % of all teachers teach pupils from only one of the three-grade teaching levels as defined in this study (Q46). The specialization at one teaching level is more common among the upper level teachers (67 %) and among the upper secondary teachers (54 %) than among the lower level teachers (35 % of the group COMPREH 1-3 and 48 % of the group COMPREH 4-6 teach at the main teaching level only). In the case of the latter two groups, however, the results may be somewhat misleading: many (44 %) of the lower level teachers teach so-called combined classes (pupils from two or more grades taught together), Thus, for example, a teacher having 'a class' of third and fourth graders teaches at two 'levels' although the heterogenity of his/her pupils is no greater than for those teaching at one level only.

The mean number of classes taught, for all teachers, is 6.0 and the mean number of all pupils taught by a teacher is 132 (Q51 and Q52 in Appendix 1, V28 and V29 in Appendix 3). The main differences, once again, can be found between the lower level teachers, on the one hand, and the upper level and the upper secondary teachers, on the other. 83 or 74 % of the two lower level groups have at most 4 classes or teaching groups as compared with only 8 or 7 % of the latter two groups of teachers having this small number of classes/groups. The means of the number of groups taught are 3.7, 4.1, 8.8 and 7.9 with corresponding standard deviations of 4.5, 2.7, 3.3 and 2.7 (for the four groups from COMPREH 1-3 to UPPER SEC, respectively).

The mean of the total number of pupils taught by a teacher is 59 for the group COMPREH 1-3, 82 for COMPREH 4-6, 208 for COMPREH 7-9 and 195 for UPPER SEC with corresponding standard deviations of 69, 78, 101 and 90 pupils. 56 and 39 % of the two lower level groups teach fewer than 45 pupils while 9/21 % teach 145 pupils or more. As to the two upper school levels, 10.5 vs 12.5 % of the teachers have fewer than 115 pupils and 295 pupils or more are taught by 17 vs 12 % of these groups (COMPREH 7-9 and UPPER SEC, respectively).

The mean size of the smallest teaching group is 14 pupils and that of the biggest group is 27 pupils. Both of these variables, more strongly so the latter one, differentiate the lower level teachers from those of the two upper school levels. Besides teaching a smaller number of classes and pupils the lower level teachers have smaller classes / teaching groups to teach. The mean size of the biggest group is 30 vs 33 pupils for the groups COMPREH 7-9 and UPPER SEC

as compared with 21 and 25 pupils for the groups of the lower level teachers.

5.3.3 Work load and free time

A summary description of the teachers' weekly work load and composition of work (Q57) is given in Table 6.

Table 6. Mean composition of work (hours per week) for teachers by main teaching level

Work sector	Teaching level group				
	COMPR 1-3	COMPR 4-6	COMPR 7-9	UPRPER SEC	Groups combined
a) regular lessons	22.5	21.6	19.5	18.1	20.7
b) extra lessons	2.6	3.6	4.0	4.2	3.6
c) preparation and after-work for lessons	7.1	8.2	10.0	14.6	9.3
d) planning and development	1.9	2.0	2.6	3.0	2.3
e) pupils welfare care	1.5	1.4	1.8	1.5	1.5
f) administration	.8	1.9	1.6	1.8	1.5
Total work load	36.3	38.5	39.5	43.2	38.9
Teaching (a+b+c)	32.2	33.3	33.6	37.2	33.6
Other than teaching (d+e+f)	4.1	5.2	6.0	6.2	5.3
Preparation and after-work per one lesson (c/(a+b))	.29	.33	.44	.68	.40
Number of cases	457	570	634	227	1888

An average work week during the school terms is 36.3 hours for teachers of the lowest grades, 38.5 hours for the group COMPREH 4-6, 39.5 hours for the upper level teachers and 43.2 hours for the upper secondary teachers. The differences in the total number of working hours are mainly due to the differences in the absolute and proportional amount of time spent on preparing the lessons or for the after-work connected with the lessons. At the lower level, this ratio is 0.3, at the upper level 0.4 and in the upper secondary school 0.7.

As to work other than instruction hours, a further question (Q 58) inquired about how it is distributed between school and home and what proportion of the homework is done on workdays (Monday-Friday) and at weekends (Saturday-Sunday). A summary of these results is given in Table 7. For all teachers, the mean amount of time spent at school is 29.4 hours per week, of which 24.3 hours are used for lessons and 5.1 hours for 'other work'. The teaching

level differences in the amount of time spent at school are relatively small as compared with the differences in homework. The means of homework for the four groups are (from COMPREH 1-3 to UPPER SEC) 7.3, 8.6, 11.3 and 15.9 hours per week. All groups carry out about 30 % of the homework on Saturdays and Sundays.

Table 7. Mean distribution of work (hours per week) between school and home and between workdays and weekends, for teachers by main teaching level.

Place and time of work	Teaching level group				
	COMPR 1-3	COMPR 4-6	COMPR 7-9	UPPER SEC	Groups combined
I. Work at school, total	29.4	30.4	28.8	28.3	29.4
a) lessons*	25.1	25.1	23.6	22.4	24.3
b) other work at school	4.3	5.3	5.2	5.9	5.1
II. Work at home, total	7.3	8.6	11.3	15.9	10.1
a) on workdays	5.3	6.2	7.7	11.3	7.1
b) on weekends	2.0	2.4	3.6	4.6	3.0
Total work load (I+II)	36.7	39.3	40.1	44.2	39.5
Total work load (Tab 6.)**	36.3	38.5	39.5	43.2	38.9
Number of cases	457	570	634	227	1888

* Points a+b from Table 6.
** For purposes of control, the total means from Table 6 are presented together with the means based on the answers to the question about the place and time of the work.

One more measure of the total work load and time budget of the subjects is presented by the answers to a question about the amount of totally free time, excluding the night's sleep, during the regular school weeks (Q61 in Appendix 1, V35 and V36 in Appendix 3). The means of the totally free time on workdays, for the four groups, are 2.9, 3.3, 2.7 and 2.1 hours per day with corresponding standard deviations of 1.8, 1.9, 1.9 and 1.7. The means of totally free time on Saturdays and Sundays are, respectively, 7.4, 8.9, 7.8 and 8.0 hours per day with corresponding standard deviations of 4.1, 4.6, 4.2 and 4.3. The group COMPREH 4-6 has more free time than the other three groups - apparently because of the differences in the sex distribution of the groups. On the other hand, it seems that the upper secondary teachers tend to have less free time on workdays than the three groups of comprehensive school teachers.

5.4 Cooperation and social relations

As a description of the social relations implied by a teacher´s work the answers to questions Q65 through Q79 (Appendix 1) are briefly discussed here. These questions inquire about the amount and quality of contacts among teachers, teacher-parent contacts, teacher-pupil relations as well as about certain aspects of influence and power experienced by teachers in their work and about the help and support teachers receive from different sources inside and outside school.

5.4.1 Staff relations

As to the amount of contacts and cooperation among teachers, more or less formal staff meetings are not very frequent in Finnish schools (Q65 in Appendix 1): one or more meetings per month is reported by 30 % of the subjects, one or two meetings per term by 36 % and no formal meetings by 39 %.

The number of different staff meetings is deemed to be adequate by 47 through 77 % of the teachers (Q66 in Appendix 1). More meetings for teachers teaching the same forms, classes or subjects are wanted by 43 % of the subjects and 52 % would like more meetings with student welfare personnel. On the other hand, more meetings of all teachers in the school is wanted by only 20 % while 3 % say that there are too many meetings of this type.

Q67 (Appendix 1) inquires about the frequency of informal contacts and discussions with colleagues concerning different aspects of the work. The most frequent themes of these discussions are matters concerning individual pupils, matters concerning individual classes and planning and organizing the instruction; these are discussed by 50 to 60 % of teachers at least once a week. 50 % of the subjects say that the amount of informal cooperation is restricted - ´somewhat´ or more severely - by lack of time (Q68). No significant differences between the teaching level groups can be seen in the frequency of the formal staff meetings (Table V37 in Appendix 3). In the case of the informal staff contacts, a lower value of the combined index V38 (Appendix 3) is shown by the upper secondary teachers than by the three groups of comprehensive school teachers.

As to the quality of (satisfaction with) staff relations, the teacher-teacher relations as well as the teacher-headmaster relations (Q74 and Q78 in Appendix 1) are described in more or less positive phrases by a majority of the subjects. The comparisons of the teaching level groups on the combined scales V40 TEACHREL, V41 HEADMREL and V42 SUPPCOL all show that the staff relations are better among the lower level teachers than among the upper level or upper secondary teachers (see Appendix 3).

5.4.2 Parent contacts

40 % of the total sample report that they have practically no contact with more than 50 per cent of their pupils' parents (Q77 in Appendix 1). As regards the different forms of school-home cooperation (Q76), more than 50 per cent of the parents are reported to participate in the parent evenings by 41 % of the teachers. On the other hand, 67 % say that less than 10 per cent of the parents make use of the consultation hours for parents. The amount of parent contacts strongly depends on the school level (combined index V39 in Appendix 3, Eta = .71). The greatest value is shown by the group COMPREH 1-3 and the lowest one by the upper secondary teachers.

Open conflicts between school and parents (usually with 'some' of these) are reported by 17 % of the teachers (Q75 in Appendix 1). 41 % say that 'most' or 'many' of their parent contacts are characterized by mutual support and help. Clear differences in satisfaction with parent contacts can be seen between the teaching level groups. Besides being more frequent the parent contacts are more positive among the lower level teachers than among the upper level or the upper secondary teachers (V49 PRNTREL and V50 SUPPRNT in Appendix 3).

5.4.3 Pupil relations and pupil behaviour

According to the answers to the question concerning the pupils' behaviour and attitudes toward teaching (Q71 in Appendix 1), most teachers seem to describe their pupils rather positively. 86 % say that 'most' or 'many' of the pupils are obedient and attentive and 74 % say that they are active and cooperative. 'Most' or 'many' pupils are said to be passive and to show no initiative by 26 % of the subjects and 18 % report that the pupils (most or many of these) are restless and unable to concentrate.

Truancy and school phobia seem to be the most frequent forms of behaviour problem among the pupils (Q72 in Appendix 1). More than a few sporadic cases per year of these are reported by 36 % of the teachers. The response alternative 'not at all' is used by 58 % when describing the pupils' use of alcohol, by 81 % in the case of other intoxicants and by 45 % for pilfering and stealing. 'No' truancy, violence or damaging of school property is reported by 31 to 33 % of the subjects. Most forms of problem behaviour are usually restricted to 'a few sporadic cases per year' or to a few individual pupils ('max 10 % of my pupils').

As to the school levels, large differences are shown by the combined indices V46 for pupil relations and V47 for pupil behaviour (Appendix 3). The least positive relations are reported by the upper level teachers and the best ones by the lower level teachers, especially by the group COMPREH 1-3. The Eta coefficient for the effect of the teaching level on criterion variable V46 PUPILREL is .38 and the corresponding value is .73 in the case of V47 PUPILBEH. As

to the latter effect, it is to be noted that some forms of misbehaviour included - e.g. use of alcohol - are not very relevant for describing the behaviour of the youngest children.

5.4.4 Possibilities of influencing one´s own work

In order to measure one more aspect of the psycho-social working situation of the teachers, Q69 inquires about the amount of say the subjects feel they have in their work. A majority of 53 to 88 % claims to have ´an adequate amount of say´ in all nine items included. The highest percentages of ´too little a say´ responses are shown by the items ´in-service training for teachers´ (47 %), ´welfare care of pupils´ (37 %) and ´purchase of teaching materials and equipment´ (32 %). The highest percentage of ´adequate´ responses is that for the item ´planning of teaching and instruction´; 88 % of the teachers are satisfied with their possibilities of influencing this most immediate aspect of their work (Q69 in Appendix 1).

If measured by the combined scale of the nine items (Table V44 INFLUENC in Appendix 3), the best possibilities of influencing one´s own working situation are reported by the two groups of the lower level teachers and the lowest score is shown by the upper level teachers. The value of Eta for this effect is .25.

5.4.5 Help and support in work

In Q79 the subjects were asked how much they receive support and help - needed for successful performance in the work - from different sources inside and outside the school. Besides paraphrasing some of the questions asked earlier about the colleagues, pupils and parents, this question with 17 items is of use in getting an overall picture of the social climate in which the teachers feel they are working.

It is revealed (Q79 in Appendix 1) that many teachers feel that they live and work in a rather hostile - or, in any case, non-supportive - social environment. A great majority, 76 to 95 % of the subjects, say that they receive ´rather little´ or ´no help and support at all´ from the local (communal) school authorities, from provincial school authorities or from the Department of Public Education. The same negative response alternatives are used by 74 % to describe the parents, by 85 % for local public opinion and by 91 % in the case of the mass media. Different teacher organizations (local teacher association, the central teacher union and pedagogic teacher societies) are also rated negatively by 81 to 89 % of the subjects.

On the other hand, however, the closest partners inside the school (i.e. other school teachers, the headmaster and the pupils) are rated positively by a majority of the subjects: 68, 65 and 59 % of the teachers say that they receive ´very much´ or ´quite a lot´ of help and support

from these three sources. Other groups inside or near the school (pupil welfare personnel, the school office assistant, school janitor, kitchen staff, and the teacher with local supervisory functions) get mostly negative ratings. This may be partly explained by the fact that many teachers lack these co-operators altogether at their work place.

For comparisons of the teaching level groups, most of the help and support items are grouped into scales V42 SUPPCOLL (help and support from other teachers and the headmaster), V43 SUPPAUXI (auxiliary and student welfare personnel), V45 SUPPAUTH (school authorities), V48 SUPPUPIL (pupils), V50 SUPPRNT (parents) and V51 SUPPUBLO (public opinion). All of these scales are significantly associated with the teaching level (Appendix 3). The Eta coefficients vary between .07 and .38, i.e. they tend to be weaker than most of those for other effects on the social relations discussed above.

An exceptional direction of the effect is shown by the variable V43 SUPPAUXI where the two lower level groups score lower than the upper level or the upper secondary teachers - it is the small lower level schools which more often than others lack the services of the auxiliary and pupil welfare personnel.

Two scales, V42 SUPPCOLL and V51 SUPPUBLO, also differentiate mainly between the two lower level groups, on the one hand, and the two upper level groups, on the other. The direction of the differences, however, is that the lower level groups score better than the latter. This same trend is the main result also for the scales V45 SUPPAUTH and V50 SUPPRNT. In addition, these two variables show a significant difference between the upper level and the upper secondary teachers: least help and support from school authorities and from parents is received by teachers of the upper secondary school.

A curvilinear effect of the teaching level is revealed by the variable V48 SUPPUPIL: the help and support received from one's own pupils is at the lowest among the upper level teachers while the upper secondary teachers score better together with the lower level teachers.

5.4.6 Social relations: Evaluation and summary

The subjective questionnaire responses which form the research data do not allow an absolute evaluation of the psycho-social working conditions of the teachers. No comparable data on other occupational groups are available. Certain reservations have also to be taken into account when comparing the results from one cultural setting with those revealed by the parallel studies in the other Nordic countries. In addition, these comparisons are possible only at some casual points at this stage: all relevant results from the four countries are not yet published and parts of the results are confidential (Blichfeldt 1980, Borg et al 1981, Brenner et al 1979).

After the defensive remarks above, one is inclined to

conclude that the social relations which form a part of the working environment of the Finnish teachers are in many ways unsatisfactory. This seems to hold true especially in the case of important relations outside the immediate school unit, i.e. the pupils´ parents, the local and central school authorities, public opinion as well as the teachers´ organizations. The interaction within one´s own school unit (i.e. with colleagues, the headmaster and one´s own pupils) is described somewhat less negatively by the teachers.

The comparisons of the Finnish results with those of the parallel Nordic studies suggest that

(a) Teacher-pupil relations are about the same in Finland, Norway and Denmark and probably somewhat worse in Sweden,

(b) Teacher-teacher relations as well as the teacher-headmaster relations are better in Norway than in Finland,

(c) Contacts and cooperation with the pupils´ parents seem to be far better in Norway than in Finland,

(d) The perceived possibilities of influencing one´s own working conditions are about the same in Finland, Norway and Sweden,

(e) The help and support felt to be received by the teachers from the school authorities, from the pupils´ parents or from the teachers´ organizations is greater in Norway than in Finland.

As to the school levels, many and to some extent rather considerable differences in the psycho-social atmosphere can be seen. Although not unique to Finland the differences are in some cases more striking in Finland than in the other Nordic countries. On the whole, the situation is better among the lower level teachers than among the upper level or upper secondary teachers. This holds true in the case of the interaction among the staff, teacher-parent relations, teacher-pupil relations as well as relations with school authorities and public opinion. In effect, only one exception to this general trend can be seen: the help and support received from the auxiliary personnel is at the upper school levels better than at the lower level - something which might only reflect the differences in the availability of the services of these personnel groups. Besides these dominant trends, one curvilinear effect of the school level can be seen: teacher-pupil relations are at their worst among the upper level teachers. On the other hand, authority relations seem to be especially impaired among the upper secondary teachers.

5.5 Satisfaction with and well-being in work

Most variables discussed in the preceding section contain evaluative ratings of the working situation and they are, consequently, also interpretable as measures of satisfaction and well-being in work. In this chapter, some results bearing on certain other aspects of satisfaction with work

are presented.

5.5.1 Physical working conditions and schedule

Questions Q27, Q28 and Q64 (Appendix 1) and the variables V52 SCHOROOM, V53 SATEQUIP and V54 SATPHYS (Appendices 2 and 3) refer to satisfaction with the material working conditions and teaching equipment. As to the school rooms and other facilities relating to these (Q27), most of the teachers (80 %) are satisfied with the classrooms. Among the facilities rated most often to be unsatisfactory are, first, the rooms for small-group instruction (65 % of the teachers dissatisfied), library room (56 %), discussion/consultation room (76 %), meeting room (66 %) and study rooms for teachers (72 %). Secondly, a majority of teachers are dissatisfied with their locker rooms (76 %), dining hall (67 %) and the lavatories for teachers (65 %). Thirdly, the rooms and facilities for pupils' use during breaks are reported to be unsatisfactory by 80 % of the teachers.

The combined measure of satisfaction with the school rooms (V52 SCHOROOM in Appendices 2 and 3) is significantly associated with the teaching level of a teacher, Eta = .10: The lower level teachers (who often work in very small and old schools) are less satisfied with the school rooms than the upper level teachers or the upper secondary teachers.

Q64 inquires about the availability of different learning materials and equipment. More than 80 % of the teachers are satisfied with the availability of the textbooks and related materials as well as with the copying equipment. On the other hand, a considerable proportion of the subjects (36 to 57 %) are dissatisfied with the availability of handbooks and reference books, audio-visual facilities, minor articles for daily use, musical instruments and sports equipment, laboratory equipment and other articles for illustration as well as with the availability of typing and duplication services in the school.

As is the case with V52 SCHOROOM, the combined index V53 SATEQUIP (Satisfaction with learning materials and equipment, Appendices 2 and 3) is significantly associated with the school level, Eta = .19: the lower level teachers are less satisfied than the teachers of the two upper school levels.

In Q28, the subjects were asked about the degree to which certain physico-chemical and ergonomic aspects of the working environment are causing harm or inconvenience in the work. As can be easily understood, the teaching profession does not experience major problems of this kind. The response alternative 'yes' (the whole scale being 'no', 'sometimes', 'yes') is, however, used by 22 to 31 % of the subjects in the case of the items noise, inadequate air conditioning, and temperature. The satisfaction with the physical working conditions (combined scale V54 SATPHYS, Appendices 2 and 3) is somewhat lower among the groups COMPREH 4-6 and COMPREH 7-9 than among teachers of the lowest forms or teachers of the upper secondary school.

In Q56 the subjects were asked to evaluate their work schedule as regards the problems caused by its inadequacies. In each of the seven items included, a majority (60 to 77 %) used the response alternative 'not at all unsatisfactory' while the alternative 'unsatisfactory to a great extent' is marked by 3 to 8 %. Moderate differences between the teaching level groups (Eta = .22 and Eta = .19) are shown by the two combined scales formed by the items: V55 SCHEDTEA Satisfaction with schedule in regard to teaching and V56 SCHEDSOC Satisfaction with schedule in regard to social relations and organization of work (Appendices 2 and 3). In the case of V55, the lower level teachers (usually class teachers with many subjects to teach) are less satisfied than the subject teachers of the upper school levels. As to V56, the greatest amount of other problems (deemed by the teachers to be caused by the schedule) is reported by the upper level teachers.

5.5.2 Difficulties experienced in work

Question Q80 inquires about the frequency of having difficulties in carrying out tasks in different sectors of the work (teaching, social education and collaboration with pupils, administrative work, pupil welfare, and developing school work and teaching). In Q81, the same work sectors are evaluated in regard to the adequacy of the respondent's own training for the tasks.

About one half or more of the teachers (47 to 72 %) use the denying response alternatives 'never' or 'seldom' when describing the frequency of difficulties in the five sectors. Eight per cent of the subjects have 'often' or 'almost always' difficulties in the instruction tasks and 10 % in social education and contacts with the pupils. The highest frequency of difficulties is reported in the case of developing tasks where 15 % have difficulties 'often' or 'almost always'.

One's own education is rated by 64 % of the subjects to be 'rather adequate' or 'quite adequate' in regard to the teaching tasks, by 49 % for social education and collaboration with pupils, and the corresponding percentage is 39 % in the case of developing tasks. For administrative work and pupil welfare tasks the percentages are 25 and 23. These two latter work sectors were, on the other hand, reported to cause difficulties quite seldom.

As regards the teaching levels, only small differences can be seen in the amount of difficulties in work (combined variables V57 TEAFACIL Facility of teaching and upbringing and V58 OTHFACIL Facility of other work sectors, Appendices 2 and 3). Slightly more difficulties are reported by the upper level teachers than by the three other groups.

The adequacy of one's own training tends to be rated somewhat better by the lower level teachers than by the upper level or the upper secondary teachers (variables V59 TRAINTEA and V60 TRAINOTH in Appendices 2 and 3). The upper secondary teachers are least satisfied with their own

training.

5.5.3 Occupational future prospects

In Q82 the subjects were asked to express their personal beliefs concerning the future development of 13 aspects of the teaching profession. The aim was to measure the occupational pessimism/optimism prevailing among the subjects as a complementary dimension to their satisfaction with the present working situation. For further analyses, the items are grouped into five scales named V61 LOADOPTI Optimism - work load, V62 MATROPTI Optimism - material prerequisites of work, V63 ECONOPTI Optimism - employment and income level, V64 AUTNOPTI Optimism - freedom and autonomy in work, and V65 PRESTOPT Optimism - prestige of the profession (Appendix 2).

For almost all items, the proportion of those who believe that the situation is becoming worse is greater than that of those who expect positive development (Appendix 1). The opposite direction is shown only by the two items about the material prerequisites of work (school rooms and facilities and learning/teaching materials and equipment).

For the items related to the immediate work load (work strain, behaviour problems of pupils, uncertainty of educational goals and attainability of objectives), the proportion of the pessimistic responses varies between 34 and 57 % and that of the optimistic responses varies between 5 and 13 %. In the case of the three economic aspects of the work (level of income, employment level, career development), a negative development is expected by 59, 72 and 20 % of the subjects and an optimistic response is given by 6, 2 and 3 %, respectively. Similarly, 53 vs. 52 % expect negative development of professional freedom and of possibilities of influencing the school while the opposite opinion is expressed by 3 vs. 6 % of the teachers.

A somewhat less marked pessimism is revealed by the items 'prestige of the occupation' and 'support given by public opinion and those in power': the proportions of the pessimistic responses are 32 and 27 % while 14 respectively 20 % of the subjects expect some positive development.

The optimism concerning the material prerequisites of the work (V62 MATROPTI in Appendix 3) is rather evenly shared by the four teaching level groups. All other combined scales show significant teaching level differences of the magnitude Eta = .09 to .20. In all of these (i.e. V61 LOADOPTI, V63 ECONOPTI, V64 AUTNOPTI and V65 PRESTOPT), the major differences are those between the two groups of the lower level teachers, on the one hand, and the teachers of the upper level and of the upper secondary school, on the other: the pessimism is most striking among the two latter groups.

5.5.4 Free time activity

Question Q91 inquires about the frequency of taking part in 16 free time activities, half of which are more or less related to the teaching profession. For further analyses the items are grouped into scales labelled V66 PUPLACTV Pupil-oriented activity, V67 PROFACTV Professional activity, V68 ORGSACTV Political and organizational activity and V69 RECRACTV Recreation and self-development (Appendix 2). Without going into a detailed description of the results (Appendix 1 and Mäkinen 1980b), the teachers seem to exhibit a rather high level of leisure activity as well in fields related to their work as in other areas. Some among the activities most often taken part in are 'reading professional books and journals' (40 % 'regularly' and 2 % 'not at all'), 'public debate on school policy' and 'informal contacts with colleagues' (for both of these: 25 % regularly and 7 % not at all) as well as 'physical exercise, outdoor activities, sports' (49 % regularly, 4 % not at all). The lowest frequencies of participation are shown by the items on political and organizational activity: 78 % spend 'no time at all' on politics and 34 % on the teachers' trade union.

The effect of the teaching level classification upon the four combined scales varies between Eta = .08 and Eta = .19 (Tables V66 to V69 in Appendix 3). The pupil-oriented activity (voluntary activities together with one's own pupils and informal contacts with the pupils and their families) is greater among the lower level teachers than among the upper level and upper secondary teachers. An opposite direction of the difference can be seen in the professional activity: the latter two groups take more part in voluntary complementary training and reading professional literature than the lower level teachers. The greatest political and organizational activity is shown by the group COMPREH 4-6 (the only one that is dominated by males). Recreational and self-development activity is lower among the upper secondary teachers than among the three groups of the comprehensive school teachers.

5.5.5 Job satisfaction

Some general evaluative responses to one's work and occupation are measured by questions Q83 to Q90 which are further grouped into the scales V70 WORKANX Freedom from anxiety in work, V71 FATIGUE Freedom from fatigue after work and V72 JOBSATSF Willingness to continue in teaching (Appendix 2).

As to the work-related anxieties, 8 % of the teachers feel ('often' or 'almost always') restless or reluctant when going to work and 13 % feel so when going to certain classes (Q83 and Q84 in Appendix 1). These feelings are denied ('no, seldom' or 'never') by about one half of the teachers. 3 % feel that the pupils 'sometimes' threaten their physical security, 13 % answer 'no, seldom' while the response

alternative 'never' is used by 84 % of the subjects (Q85).

Some amount of work strain is possibly reflected by the answers to questions Q86 and Q87: 29 % of the teachers say that they 'often' or 'almost always' find it difficult to detach their thoughts from work problems during their free time, and 30 % are (often or almost always) so tired after a day's work that they are unable to do anything else.

Five per cent of the subjects would 'definitely not' and 23 % would 'probably not' choose to become a teacher if given a chance to start all over again. The proportion of those making the same choice again (definitely or probably) is 54 % (Q90 in Appendix 1). As to the present willingness to get a job other than teaching (Q89), 3 % say that they have made some preparations or attempts to change, 34 % have given some thought (without any action) to finding some other job while 63 % seem to be quite satisfied with their occupation. When asked (in Q88) whether the subjects are willing to teach in some other school, 75 % answer 'no'. It seems that the (not very common feeling of) dissatisfaction among the teachers is directed toward the occupation in general, not to the particular working conditions of their present school.

Practically no teaching level differences can be seen in the variable V71 FATIGUE (Appendix 3). The Eta coefficients for the differences in V70 WORKANX and V72 JOBSATSF are .24 and .15, respectively. Restlessness and reluctance is greater among the upper level and the upper secondary teachers than among the lower level teachers. Further, the upper level teachers score significantly worse than the upper secondary teachers. General job satisfaction (V72 Willingness to continue in teaching) is best among the lower level teachers of grades 1-3, the other three groups do not differ from each other on this scale.

5.5.6 Well-being in work, family and leisure

A short-cut attempt to measure feelings of social esteem, interpersonal confidence, self-esteem, and meaningfulness, each of these separately for the life sectors work, family and leisure, is attempted by question Q92. The question is taken from Mäkinen (1974; 1975) and it aims at an integration of the alienation-oriented measurement of mental health by Gardell & Westlander (1968) with Bradburn's (1969) treatment of the life sectors as partly independent areas of psychological well-being. For further analyses, the items are grouped into eight scales, four of these concerning feelings related to work and four for those connected with family life and leisure (V73 through V80 in Appendix 2).

The responses to the single items suggest (Appendix 1) that the life sector work tends to be perceived somewhat less positively than family life or leisure. In the case of interpersonal confidence (willingness to rely on other people when having difficulties), family life scores clearly better than both of the other life sectors (of course).

Responses indicating lack of social (self-) esteem seem

not to be very frequent: Almost regardless of the life sector, about 6 % of the subjects feel that other people ´quite often´ or ´very often´ undervalue or act in a hostile manner toward them, and 17 % feel that other people respect or appreciate them ´quite seldom´ or ´hardly ever´. Social withdrawal tendencies (or introversion, as contrasted to interpersonal confidence) are far more common, especially so in work and leisure: 38 % of the subjects think that ´quite often´ or ´very often´ it is best to solve one´s work problems oneself without expecting any help from other people. In the case of family life and leisure, the corresponding percentages are 25 and 32, respectively. According to the other item about interpersonal confidence, 52 % of the subjects ´hardly ever´ or ´very seldom´ rely on others when having difficulties in work. For family life and leisure the percentages are 36 and 54.

As to self-esteem, 31 % of the teachers feel (quite often or very often) that they have accomplished nothing valuable, respectable or useful in their work, and a similar proportion thinks that they have performed and succeeded poorly in their work. The corresponding percentages for family life and leisure vary between 19 and 27.

Concerning feelings of the meaningfulness of work, 18 % say that life at work is useless and dull, and 24 % feel that ´hardly ever´ or ´very seldom´ are they able to act in their work in a way which gives them real satisfaction. The corresponding percentages for family life are 16 and 18 and those for leisure are 9 and 17.

Rather small (and mostly insignificant) differences between the teaching level groups are shown by the combined scales measuring this kind of well-being / alienation in family life and leisure (V77 through V80 in Appendix 3). The scales for social esteem and self-esteem in work (V73 and V75) also fail to differentiate between the teaching levels.

Moderate differences can be seen in the variables V74 WKTRUSTF Interpersonal confidence in work and V76 WMEANING Meaningfulness of work, the value of Eta being, for both of these, = .14: The amount of interpersonal reliance is greatest among the lower level teachers of grades 1-3 and lowest among the upper secondary teachers. The group COMPREH 1-3 also scores best on the meaningfulness of work while the lowest mean on this scale is shown by the upper level teachers.

5.5.7 Satisfaction and well-being: An evaluation and summary

The heterogeneous set of well-being variables discussed above includes
(a) satisfaction with material working conditions and schedule,
(b) difficulties experienced at work,
(c) occupational future prospects,
(d) free time activity,
(e) job satisfaction, and

(f) psychological well-being in work, family and leisure.

Correspondingly, a set of contradictory conclusions seems to be arrived at when trying to evaluate the level of job satisfaction and psychological well-being among the teachers. Besides the problems of subjective/objective evaluation and those of comparability of the results (referred to already in connection with social relations), the situation is not, of course, one of a 'either-or' but rather one of 'both-and'.

To begin from the more positive side of the results, the general job satisfaction does not seem to be especially poor. Only 3 % of the subjects have made some preparations to get another job away from teaching, 5 % would 'certainly not' become a teacher if given the chance to start over again, and 75 % would not like to teach in another school. These figures compare rather favorably with the results of a Finnish survey (Central Statistical Office of Finland, 1979b) according to which 8 % of Finns are actively trying to find another job. One can note, however, that the proportion of those who 'would certainly teach again' is somewhat smaller in this study than in the Swedish one (Brenner et al., 1979) or in the American studies from the fifties and sixties (National Education Association, 1967).

A moderate level of job motivation and general vigour might also be reflected by the results on the free time activity of the teachers. For this part, the results are about the same as the Norwegian ones (Blichfeldt, 1980).

On the other hand, some degree of strain might be reflected by the results concerning tiredness after a day's work or being bothered by work problems during one's leisure. Both of these seem to hamper the well-being of about one third of the teachers. In this respect, the situation is about the same in Sweden (Brenner et al 1979); no comparable data on other occupations are available.

Similarly, the degree of pessimism in regard to occupational prospects seems to be very high. Most teachers feel that almost everything connected with the profession is getting worse. The helplessness and distrust connected with this atmosphere is possibly interpretable as a reflection of the problems in the external social relations of the occupation.

A varying degree of satisfaction with certain more concrete aspects of the work (material prerequisites and schedule) is revealed by the results. A clear majority of the subjects find their working conditions unsatisfactory in regard to different special rooms necessary when adopting the new forms of school work and cooperation (something that the teachers are officially expected to do). Dissatisfaction with the social rooms and facilities for the teachers' use is also very common.

A rather small minority of the teachers is under strain from the inadequacies of the schedule. Similarly, about one ten admits serious difficulties in taking care of the different work sectors when this is asked directly. At the same time, however, many (partly a great majority) rate their own education as being inadequate for the different

requirements of the work. Some not very effectively repressed feelings of inadequacy about their own working resources seem to be rather common.

The results on alienation-related feelings in work, family and leisure are not specific enough for evaluation. The work is experienced more negatively than the two other life sectors. This, however, is not unique to teachers (Bradburn, 1969; Mäkinen, 1974; Haavio-Mannila, 1970).

The teaching level differences in the satisfaction and well-being variables tend to be smaller than, for instance, in the social relations discussed earlier.

In most cases (and similarly with social relations) the differences are in favor of the lower level teachers, as compared with the upper level or the upper secondary teachers. The major exception to this general tendency of the results is satisfaction with the material working conditions: most complaints concerning school rooms, learning materials and physical working conditions are presented by the lower level teachers. Despite this (and a lower socio-economic status) the lower level teachers seem to show a somewhat better psychological adjustment to the occupation than teachers of the upper school levels. These mean differences are, however, small and of minor importance if compared with the within-group variation in job satisfaction and psychological well-being.

5.6 Psychosomatic stress symptoms and health

Question Q98 contains a series of psychosomatic stress symptoms or illnesses (adapted mainly from the Cornell Medical Index by Wahlund & Nerell, 1976). For further analyses the items are grouped into five scales V81 PSYSYMPT Freedom from psychic stress symptoms, V82 ACHES Freedom from (muscular) aches, V83 CIRCULAT Freedom from circulatory symptoms, V84 RESPIRAT Freedom from respiratory symptoms and V85 STOMAC Freedom from stomach symptoms (Appendix 2).

The most frequent symptoms (Appendix 1) turn out to be those belonging to the groups containing psychic symptoms and aches. 35 % of the subjects suffer from fatigue 'very often' or 'quite often' (the three other response alternatives being 'sometimes', 'seldom' and 'never'). Frequent sleep disturbances are reported by 9 %, depression by 11 %, nervousness and restlessness by 12 %. Similarly, various aches (in the neck, in the shoulders, in the small of the back, headache) are 'very often' or 'quite often' suffered from by 15 to 20 % of the teachers.

In Q99 the subjects were asked about whether or not they have during the twelve months preceding the inquiry suffered from certain illnesses. The question is taken from Allardt's (1975) study on well-being in the Nordic countries and some of the items repeat those in Q98. According to this question, the most frequent illnesses are migraine or severe

headache (22 %), some allergic disease (16 %), laryngitis (16 %), high blood pressure (15 %), and obesity (14 %).

According to the answers to question Q100 - another one taken from Allardt (1975) - 34 % of the subjects had used pain killers during the two weeks preceding the inquiry, 30 % had used vitamin preparations and some tranquillizer was taken by 6 % of the subjects.

The general state of health (Q93) is reported to be 'quite good' or 'rather good' by 74 % of the subjects; the response alternatives 'rather bad' or quite bad' are used by 5 %.

56 % of the subjects report no sickness absences during the twelve months preceding the inquiry, 3 % had been on sick leave more than three times (Q94). In most cases (29 % of the subjects in addition to the 56 % who had taken no sick leave) the absences lasted for less than one week. Six per cent were absent for more than two weeks (Q95). 8 % of the subjects reported that their sickness absences had somehow been connected with their working situation (Q96). 74 % had adequate possibilities of taking sick leave when they have needed it, 22 % had needed 'somewhat more', and 4 % 'considerably more' sick leave (Q97).

Generally speaking, the teaching level differences in the variables measuring psychosomatic symptoms and health (V81 through V89 in Appendix 3) are rather small; the Eta coefficients vary between .05 and .14. Most of the significant differences suggest that various symptoms and health problems are most frequent among the teachers of the lowest forms and least frequent among the upper secondary teachers. The general linear trend is somewhat disturbed by the group COMPREH 4-6 which often scores equally well with the group UPPER SEC. This latter effect turns out to be due to the different sex distributions of the groups: the group COMPREH 4-6 consists mainly of males and males are less prone to express (in questionnaire studies) health problems than females (Mäkinen, 1980b).

As compared with the teachers in the other Nordic countries, Finnish teachers seem to be rather sick. According to their subjective ratings of general state of health, the subjects of this study - together with the Danish teachers - score clearly worse than teachers in Sweden or, to an even greater extent, in Norway where 80 to 85 % say that their health is 'very good' or 'rather good'. Similarly, the frequencies of various psychic and psychosomatic complaints tend to be higher, especially so if compared with Norway. On the other hand, the rate of sickness absence is clearly smaller among the Finnish teachers than in Sweden or Denmark and somewhat smaller than in Norway (Lundberg, 1980d; Lundberg, 1981) or in Great Britain (Simpson, 1962).

These differences are, however, obviously not in any way specific to the teaching profession. On the contrary, it seems far more probable that the general differences in health and health behaviour (Allardt, 1975) as well as in sickness absences (Nyman & Raitasalo, 1978) are reflected by

the results. One cannot conclude that some inter-Nordic differences in the organization of the school system and work or in the psycho-social well-being of teachers would be reflected by the health data.

If evaluated against the Finnish frame of reference, the results suggest that teachers are a very healthy occupational group. Their subjective ratings of general state of health are comparable to those given by company managers and indicate a health state far better than, for instance, among office or manual workers (METELI, 1977). Similarly, the rate of sickness absence is very low if compared with other occupational groups (Nyman & Raitasalo, 1978) - something which might indicate high morale in addition to good health.

In this respect, the results are in accordance with the mortality statistics for middle-aged people, according to which the teachers are healthier than almost any other of the occupational groups - in Finland (Sauli, 1979) as well as in many other countries (Kasl, 1978). Apparently the teachers are relatively seldom exposed to risk factors - be it the work and working conditions or the more general patterns of living associated with the profession (Fox & Adelstein, 1978; Sauli, 1979) - that were harmful enough to cause severe health problems.

On the other hand, certain details of the results seem to contradict the positive conclusion presented above. Self-reports of high blood pressure, migraine, obesity, and allergic diseases are somewhat more common among teachers than among all 15-64-year-olds in Finland, when investigated in the same way (Allardt, 1973; 1975). The difference is the same among both sexes, but it is particularly clear among men. It has to be born in mind, however, that the sample of this study almost completely excludes the healthiest groups of the 15-24-year-olds which constituted about 10 % of Allardt´s sample.

Besides headaches, some other psychosomatic stress symptoms (fatigue, restlessness, aches in the neck and upper back) turn out to be very common among teachers - equally or even more common than among prison personnel which is said to be the most stressed occupational group studied at the Finnish Institute of Occupational Health (Kalimo & Olkkonen, 1979; Kalimo, 1980).

In conclusion, the positive total picture (as regards the general state of health) has to be reformulated. The prevalence of certain symptoms and health complaints seems to indicate a rather severe degree of stress and tension among the teachers. This implies, as such, an impaired level of well-being and health for a remarkable proportion of the professional group. It is very probable that more severe health problems are also associated with the symptoms or the factors underlying them. The importance of the stress factors is not nullified by the fact that many other health hazards may be absent and the mean state of health is good.

6 RELATIONS BETWEEN BACKGROUND, WORK, WELL-BEING AND HEALTH

6.1 Task and procedure

6.1.1 Problem

The general problem is to explore the structure of the correlative connections between variables that describe background, work and well-being among Finnish teachers from the following points of view:
(a) municipality, school district, and school,
(b) person, family situation, education, and occupational background,
(c) teacher position, teaching level, and teaching subject,
(d) amount and variability of pupil contacts and teaching contents implied by the daily work,
(e) work load and time budget,
(f) amount of and satisfaction with collaboration and social relations comprised or implied by the work,
(g) satisfaction with schedule and material prerequisites of work,
(h) personal optimism concerning the future development of working conditions,
(i) job satisfaction and mental well-being in work,
(j) professional and non-professional leisure time activeness,
(k) mental well-being in family life and leisure, and
(l) psychosomatic and physical health.

The aim is to explain the variance in psycho-social, psychological, and psychosomatic well-being by variation in the background situation and work of teachers. An attempt is made to explain the variables under points f) to l) in the list above partly by reference to each other and partly by reference to variables under points a) to e). In line with the general starting points of the study, these relations are studied as a network of interwoven connections; the structure of the relations, instead of single relations, is explored.

In the context of the main problem and in order to illuminate it further, the structure of the relations among the independent variables (background and work) is also studied. This is, technically speaking, deemed to be important for the sake of an explicit control for parallel and mediated effects of the independent variables on the dependent variables. Contentually, this corresponds to the ideas about hierarchical interwoven systems: phenomena at the levels of community, school, personal background and life, organization of work and time budget are expected to be related to each other; and, accordingly, all of them can be assumed to influence the dependent variables indirectly (through each other) as well as directly (or, more likely, indirectly through systems not represented by the variables

included in the study).

Answers to the problems stated above are sought separately for teachers of the four teaching levels: comprehensive school teachers of grades 1 to 3, 4 to 6, and 7 to 9 and upper secondary school teachers. Discovering similarities and differences in the structures revealed by different teaching level groups presents the second main objective of the section. These comparisons might be interpreted as control procedures necessary for exploring the first problem: when the levels were analysed together, the multiplicity and amount of differences between the school levels (as discussed in the preceding section) would inevitably distort the results. The distortion would be especially misleading when the teaching level groups in actuality represent basically different occupational populations.

As to the scope of the problems, what is sought for and tested is a macro-model of well-being and health in the teaching profession. We are striving for an empirical overview of the relations between variables that describe various systems of different levels. The relations to be studied are restricted to linear ones. Other types of association as well as detailed structures within single system levels are not objectives of this study.

6.1.2 The method: PLS path modelling with latent variables

The statistical model chosen for analysing the structure of relations between the research variables in this study is a path analysis with latent variables using nonlinear iterative partial least squares (PLS) (Wold, 1975 and 1980; Noonan & Wold, 1977 and 1980; Noonan, 1981a and 1981b).*) This model of analysis is specially developed for research situations where interrelations of a loose causal nature between blocks of variables describing systems of different levels are explored, preliminary theoretical formulations about the causal structure are weak, and the amount of information (as regards the number of variables) is great but the quality of information (as to the validity, reliability and distribution of the variables) is low (Wold, 1980). As compared with traditional path analysis, an analysis with latent variables reveals the (inner) path relations between the latent variables that are represented by blocks of

---

*) The present writer is indebted to Dr. Sten-Olof Brenner of the Laboratory for Clinical Stress Research, Stockholm, for making him familiar with the PLS during our collaboration on the joint Nordic NORDSTRESS teacher study. The PLS computer program was kindly provided by Dr. Richard Noonan, one of its authors, the Institute of International Education, University of Stockholm.

one or more observed/manifest variables (Duncan, 1975). The strategy is analogous to that of canonical analysis where maximal correlations between 'latent variables' (canonical variates) represented by two blocks of variables are revealed/sought for. In the case of path analysis with latent variables, the latent variables behind more than two blocks of manifest variables are sought for at the same time and related to each other. On the other hand, only one latent variable per block of manifest variables is built up as opposed to the one or more orthogonal pairs of canonical variates revealed by canonical analysis. (After the analyses for this study were run, a new version of the method without this restriction has been published by Lohmöller, 1981).

In effect, there are two methods available for path analysis with latent variables; the other one is represented by LISREL (Analysis of linear structural relationships by the method of maximum likelihood, Jöreskog & Sörbom, 1978). Compared with the PLS, LISREL is in many ways more elaborate and allows for a more refined analysis of the data and the testing of theoretical formulations. For instance, the PLS is applicable only with recursive path models, while LISREL is equally suitable for testing path models with feedback relations. On the other hand, the PLS is - because of being least squares oriented - claimed to be less sensitive to various deficiences in the research material as well as to premature (i.e. erroneous) theoretical formulations behind the model tested (Wold, 1980).

The input data for the PLS consists of the correlation matrix over the manifest research variables, ordered into blocks that represent the theoretical latent variables. The blocks are arranged in a causal or quasi-causal order, from the exogenous variables to the final criterion variable or variables.

Besides the content and order of the blocks, the researcher specifies three aspects of his model:
(a) the outer relations, i.e. the relations between the observable manifest variables and the respective latent variables,
(b) the inner relations, i.e. the relations among the latent variables, and
(c) the weight-modifiers associated with each predictive relation (Noonan, 1981b).

The outer relations are designated outward (or reflective) in cases where the manifest variables are assumed to be due to or caused by variation in the underlying latent variable. The outer relations are designated inward (formative or productive) when the variation in the latent variable is assumed to be due to or caused by variation in the manifest variables. This distinction between outward or inward outer relations determines the specification of the linear combinations making up the PLS estimates of the theoretical latent variables (see Noonan & Wold, 1980, 8-10).

The inner relations are partly specified by the arrangement of the blocks: a block / latent variable appearing earlier on the list may causally influence or be

non-causally correlated with a latent variable later on the list, but a later variable cannot influence an earlier variable. In addition, the researcher may delete any path from his model - in advance on theoretical grounds or 'iteratively' after preceding path analyses - according to the rules of traditional path analysis.

The use of differential weight-modifiers or inner weights for each predictive (inner) relation allows the analysis to be focused more or less on selected relations. If the study primarily aims at maximal explanation of some final dependent variable blocks (at the end of the causal chain), these blocks may be given maximal weights while those interpreted as presenting 'causes' are given some lower weights. This leads to a solution where the latent variables (compounds of the manifest variables) are 'rotated' so that the variance in the dependent variables is maximally explained by the model. The use of differential weight-modifiers seems, however, to present serious problems eg. due to the arbitrariness of the weight scale. On the other hand, if the whole chain of causality is of equal interest, every block (except the exogenous ones) is given equal weight.

The estimation procedure is in two phases. In the first phase, the latent variables - the weights of manifest variables used for computing the estimates of the latent variables - are estimated iteratively. In the second phase, ordinary least squares regression is used to estimate the inner relations as well as the loadings of the latent variables on the manifest variables.

The standard output of the computer program used (Noonan, 1981a) includes:

(a) outer relations: the weights or the multiple regression coefficients of the manifest variables on the corresponding latent variable together with the loadings or the simple regression coefficients of the latent variables on its indicators,

(b) intercorrelations among the latent variables,

(c) standardized path coefficients with significance tests for the inner relations, and

(d) the total path coefficients, i.e., the direct path coefficients added by the products of path coefficients for all indirect paths between two latent variables.

No useful significance test for congruence between the final path model and intercorrelations of the latent variables is available in the PLS.

6.1.3 Variables included in the model

After a series of correlation, factorial and regression analyses (some of which are reported elsewhere - see Mäkinen, 1980a and b; Mäkinen & Penttonen, 1980) followed by preliminary experimentations with the PLS path analysis, 78 of the 89 research variables of the study (Appendix 2) are ordered into 29 blocks as shown in Table 8. More specifically, there are 75 variables for the two groups of teachers of the lower level of the comprehensive school (groups COMPREH 1-3 and COMPREH 4-6) and 77 variables for the teachers of the comprehensive secondary school (COMPREH 7-9) as well as for the upper secondary school teachers (group UPPER SEC). 74 of the variables and 28 of the blocks are identical for all four groups.

The order of the blocks B1 through B29 in Table 8 shows the quasi-causal order assumed (in the model) to prevail among the corresponding latent variables. It is assumed that a latent variable appearing earlier on the list may causally influence a latent variable later on the list, but a later variable cannot influence an earlier variable. Thus it may be that there is no relationship between two particular latent variables on the list, or it may be that the relation is one of non-causal association No assumptions about the causality between the manifest variables within a block are implied.

The two principles followed when ordering the manifest variables into blocks are: firstly, each block should include manifest variables that describe only one natural system, and the blocks earlier on the list should not represent sub-systems of those represented by the blocks lower on the list. Secondly, the manifest variables in a block should represent only one intuitively comprehensible dimension of variation in a system. Both of these principles are, in actual practice, more or less violated. In general, however, we are striving at latent variables which would logically represent unidimensional differences in natural systems. This leads to a model with relatively many latent variables/blocks, many of which contain only a few - or only one - manifest variables.

As to the content of the model, blocks B1 to B3 (COMMUNTY, REFOYEAR, SCHOSIZE) represent three different objective aspects of the living and working environments of teachers. Some of the original variables (Appendix 2) related to these areas are left out of the model - because of their failure in the preliminary analyses to add to the information contained in the variables included or because of the lack of correlations of interest with other variables of the study.

Blocks B4 through B6 (SEX, AGE, FAMILY) refer to the person and family situation and blocks B7 and B8 (EDUCATN, PROFBGND) to the educational and professional background of a teacher. The background situation connected with the person (as contrasted with B1 through B3 on the local environment and school) is represented by these latent

Table 8. List of latent variables (blocks), manifest variables in blocks, and reliabilities of manifest variables

Block and Variable	Block and Variable content	Vars. in block	Items in var.	Rel.
B1 COMMUNTY	Community	3		
V1 NINHABTS	Number of inhabitants		1	-
V4 DENSPOPL	Density of population / school district		1	-
V5 URBNOCCU	Urbanness of occupations / school district		5	.71
B2 REFOYEAR	Year of school reform	1		
V3 REFOYEAR	Year of school reform		1	-
B3 SCHOSIZE	School size	1		
V7 SCHOSIZE	School size, number of pupils		1	-
B4 SEX	Sex	1		
V11 SEX	Sex: 1 = male, 2 = female		1	-
B5 AGE	Age	1		
V12 AGE	Age in years		1	-
B6 FAMILY	Family situation	2		
V13 MARRIED	Married		1	-
V14 CHILDREN	Children who need day-care		1	-
B7 EDUCATN	Education	2		
V15 HIGHDEGR	Higher university degree		1	-
V16 EXTRAEDU	Extra studies in educational subjects		1	-
B8 PROFBGND	Professional background	3		
V17 COMTEACH	Teacher in communal school system before reform		1	-
V18 PRITEACH	Teacher in private school before school reform		1	-
V19 STATEACH	Teacher in state-owned school before reform		1	-
B9 TEASUBJ	Teaching subject	1/3*		
V21 CLASSTEA	Class teacher with many subjects		1	-
V22 LANGTEA	Language teacher		1	-
V23 MATHTEA	Teacher of mathematical subjects		1	-
V24 MODNTEA	Teacher of modern subjects		1	-
B10 NPUPILS	Number of pupils and classes	4		
V25 NLEVELS	Number of teaching levels		1	-
V28 NCLASSES	Number of classes or teaching groups		1	-
V29 NPUPILS	Number of pupils taught by the teacher		1	-
V30 CLSIZE	Mean class size		1	.75

* V21 for groups COMPREH 1-3 and COMPREH 4-6,
V22 through V24 for groups COMPREH 7-9 and UPPER SEC

(continues)

Table 8. (continued)

Block and Variable	Block and Variable content	Vars. in block	Items in var.	Rel.
B11 NCOURSES	Number of subjects and courses	2		
V26 NSUBJCT	Number of subjects		1	-
V27 NCOURSES	Number of different courses		1	-
B12 WORKHRS	Weekly work load in hours	4		
V31 CLASSHRS	Class hours per week		1	-
V32 WKOUTCLS	Out-of-class work at school, hours per week		1	-
V33 HOMEWKWD	Out-of-class work at home on weekdays		1	-
V34 HOMEWKSD	Out-of-class work at home at weekends		1	-
B13 FREETIME	Totally free time for personal use	2		
V35 LEISURWD	Totally free time on weekdays, hrs/day		1	-
V36 LEISURWE	Totally free time weekends, hrs/day		1	-
B14 SUPPAUTH	Help and support from authorities and public	2		
V45 SUPPAUTH	Help and support from school authorities		4	.71
V51 SUPPUBLO	Help and support from public opinion		2	.63
B15 STAFFREL	Social relations among school staff	4		
V38 TEAINTER	Informal collaboration among teachers		8	.82
V40 TEACHREL	Teacher - teacher relations		4	.79
V41 HEADMREL	Teacher - headmaster relations		3	.71
V42 SUPPCOLL	Help and support from colleagues		2	.68
B16 INFLUENC	Possibilities of influencing own work situation	1		
V44 INFLUENC	Possibilities of influencing own work situation		9	.73
B17 PUPILREL	Pupil relations and pupil behaviour	2		
V46 PUPILREL	Teacher - pupil relations		4	.79
V47 PUPILBEH	Rarity of problem behaviour among pupils		6	.84
B18 PRNTREL	Relations with pupils´ parents	3		
V39 PRNTCONT	Frequency of teacher - parent contacts		4	.75
V49 PRNTREL	Teacher - parent relations		2	.29
V50 SUPPRNT	Help and support from pupils´ parents		1	-
B19 MATERSAT	Suitability of material working conditions	3		
V52 SCHOROOM	Satisfaction with school rooms		16	.85
V53 SATEQUIP	Satisfaction with learning material&equipment		11	.71
V54 SATPHYS	Satisfaction with physical working conditions		8	.75
B20 SCHEDSAT	Suitability of schedule	2		
V55 SCHEDTEA	Satisfaction with schedule - teaching		3	.66
V56 SCHEDSOC	Satisfaction with schedule - social relations		3	.60

(continues)

Table 8. (continued)

Block and Variable	Block and Variable content	Vars. in block	Items in var.	Rel.
B21 OCCUOPTI	Occupational optimism	5		
V61 LOADOPTI	Optimism - work load		4	.72
V62 MATROPTI	Optimism - material prerequisites		2	.62
V63 ECONOPTI	Optimism - employment and income level		3	.58
V64 AUTNOPTI	Optimism - freedom and autonomy in work		2	.69
V65 PRESTOPT	Optimism - prestige of profession		2	.67
B22 WKFACIL	Facility of work	4		
V57 TEAFACIL	Facility of teaching and upbringing		2	.62
V58 OTHFACIL	Facility of duties other than work with pupils		3	.63
V59 TRAINTEA	Adequacy of training for teaching		2	.67
V60 TRAINOTH	Adequacy of training for other duties		3	.78
B23 PSYWORK	Psychological well-being in work	5		
V70 WORKANX	Freedom from anxiety in work		3	.61
V71 FATIGUE	Freedom from fatigue after work		2	.50
V73 WKSOCEST	Social esteem in work		4	.52
V75 WSELFEST	Self-esteem in work		2	.68
V76 WMEANING	Meaningfulness of work		2	.62
B24 JOBSATSF	Willingness to continue in teaching	1		
V72 JOBSATSF	Willingness to continue in teaching		2	.61
B25 PROFACTV	Profession-related leisure activeness	2		
V66 PUPLACTV	Pupil-oriented activeness		3	.58
V67 PROFACTV	Professional activeness		4	.49
B26 PSYHOME	Psychological well-being outside of work	4		
V77 HMSOCEST	Social esteem in family-life and leisure		4	.63
V79 HSELFEST	Self-esteem in family-life and leisure		4	.78
V80 HMEANING	Meaningfulness in family-life and leisure		4	.77
V81 PSYSYMPT	Freedom from psychic stress symptoms		5	.80
B27 LEISACTV	Leisure activeness not related to work	2		
V68 ORGSACTV	Political and organizational activeness		3	.59
V69 RECRACTV	Personal recreation and self-development		5	.31
B28 PSYSOM	Psychosomatic health	4		
V82 ACHES	Freedom from (muscular) aches		6	.82
V83 CIRCULAT	Freedom from circulatory symptoms		6	.78
V84 RESPIRAT	Freedom from respiratory symptoms		3	.78
V85 STOMACH	Freedom from stomach symptoms		2	.67
B29 HEALTH	Health and work attendance	4		
V86 GENHEALT	General state of health		1	-
V87 ILLNESS	Health - freedom from illnesses		12	.39
V88 MEDICINS	Health - non-use of medicines		7	.41
V89 ABSENCES	Health - low rate of sickness absence		2	.83

variables. The causal or non-causal associations of B1 through B3 with B4 through B8, if any, are interpretable mainly as results of teacher selection.

Block B9 TEASUBJ is the only one containing different manifest variables for different teaching level groups. For the groups COMPREH 1-3 and COMPREH 4-6, V21 CLASSTEA alone is included, i.e. a distinction is made between class teachers with many subjects on the one hand and specialized class teachers and subject teachers with fewer subjects on the other. For the teachers of the two upper levels of school, the teaching subject is specified more exactly by the dummy variables V22 to V24. The variability and number of pupil contacts implied by work is measured by the manifest variables in B10 NPUPILS, and the variability of teaching contents by the variables in B11 NCOURSES. B12 WORKHRS contains four variables concerning the number of hours per week spent on different work sectors at school and at home.

As to the causal chain of the latent variables, B9 TEASUBJ is an intermediary between the person-related background variables (specifying teacher-in-which-subject) and blocks B10 to B12 that refer to the work of a teacher. Various forms of effects (and of non-causal associations) of the latent variables earlier on the list upon B9 to B12 seem to be possible: B1 COMMUNTY might show an effect (very probably mediated by 3 SCHOSIZE) upon the work of a teacher - especially upon B10 NPUPILS. The recency of the transition to the new school system (B2 REFOYEAR) might influence the work load of a teacher (B12). And - to take only one possible example among the personal background variables - 4 SEX is obviously connected (possibly through B7 EDUCATN) with B9 TEASUBJ as a result of sex differences in the subject orientation in our culture.

Block B13 FREETIME contains two variables. It could logically be grouped together with the personal background situation variables and it is expected to depend on some of them. Also, because of the (very obvious) possibility that the amount of time totally available for personal use depends on the amount of time spent working (B12), B13 comes later on the list. On the other hand, B12 and B13 together could be conceived as indicators of the time budget of a teacher.

Blocks B14 through B18 (SUPPAUTH, STAFFREL, INFLUENC, PUPILREL, PARNTREL) contain manifest variables that describe qualities of various social systems (social relations) connected with a teacher's work. According to the socio-technical point of view (as well as to numerous research results), some of these latent variables are expected to depend on the school size (B3) as well as on the organization of a teacher's work (B10 NPUPILS and B11 NCOURSES). B2 REFOYEAR is one possible determinant of authority and staff relations (B14 and B15). Further, one can easily imagine mediating processes (for instance variation in the youth culture) that may associate the local

environment (B1 COMMUNTY) with pupil relations (B17) and with parent relations (B18).

Blocks B19 through B21 (MATERSAT, SCHEDSAT, OCCUOPTI) include manifest variables with a reference to satisfaction with (or satisfactoriness of) certain aspects of a teacher´s working situation: material prerequisites, timetable (i.e. organization of work), and occupational prospects. In this context, they are grouped together with blocks B14 through B18 to form a super-block descriptively called ´psychosocial working situation´. By doing this, a distinction is made between the more or less objective background and work variables in blocks B1 through B13 and the evaluative, subjective (´psychological´) variables in blocks B14 through B21. The word ´social´ is added in order to emphasize that most of these subjective variables refer to the satisfactoriness of interpersonal or sociocultural relations.

The manifest variables in blocks B22 to B25 (WKFACIL, PSYWORK, JOBSATSF, PROFACTV) represent more generalized forms of well-being in work as contrasted with more specific aspects of satisfaction or evaluations within the working situation in blocks B14 to B21. In other words, the latter ones are interpreted as perceived stressors or alarm reactions while blocks B22 to B25 represent work-related defensive and coping responses or pathological end-states. This being the case, they present the final dependent variables of the model as far as the criteria of well-being in work are concerned. This distinction, however, is not very clear. Block B22 in particular is intermediary, containing ease-difficulty ratings of different sectors of work and ratings of the adequacy of a teacher´s own training when facing the demands of work. B23 , ´psychological well-being in work´ (in a relatively limited sense), consists of five manifest variables measuring various feelings in work, such as feelings of anxiety, tiredness, social esteem, self-esteem, and meaningfulness. Generalized job satisfaction (as contrasted with general disappointment in one´s occupation) is measured by one variable (V72, ´Willingness to continue in the teaching profession´) in B24 JOBSATSF. A more behavioural measure of job satisfaction and work motivation is presented by B25 PROFACTV with two variables.

Blocks B26 through B29 (PSYHOME, LEISACTV, PSYSOM, HEALTH) contain well-being variables without explicit reference to work or with an explicit reference to life sectors other than work. In accordance with the general stress hypothesis as well as with the hypothesis of the generalization of well-being in work, they present the final dependent variables of the model. Two latent variables in this group are more or less direct counterparts of the two criteria of well-being in work. Block B26 PSYHOME, in analogy to B23 PSYWORK, contains the manifest variables V77, V79 and V80 concerning feelings of social esteem, self-esteem and meaningfulness in family life and leisure activities. In addition, V81 PSYSYMPT consists of items partly analogous to those in the manifest variables V70

WORKANX and V71 FATIGUE. B27 LEISACTV, consisting of vigour and activity directed outside work, presents a counterpart to B25 PROFACTV. B28 PSYSOM contains four stress symptom scales with more somatic contents (as compared with the psychic stress symptoms in V81 of B26). Finally, B29 consists of four manifest variables on the general state of health, freedom from illness, use of medicines, and sickness absence.

Many problems remain unsolved when ordering the latent variables into a model of this kind. Firstly, the order of the latent variables within the section 'psycho-social working situation' (B14 through B21) is problematic and should be regarded only as a rough approximation of their causal order. We cannot, for instance, seriously argue that the possibilities - subjectively perceived to be good - of influencing one's own work (B16) 'cause' satisfaction with or satisfactoriness of the material working conditions (B19) instead of the reversed direction of causality, if any. In actual practice, however, an approximate model is needed to begin with, and it is believed that this kind of minor deficiency in the arrangement of the variables does not prevent the large-scale testing of the model.

Secondly - and more seriously - the order among the final dependent variables B22 through B29 is controversial, as is their status as final dependent variables. We face here the problems of operational differentiation between the adaptive capacities and end-states (as discussed in Sections 2.1. and 2.2.). In effect, it would also be defensible to treat at least some of these 'final dependent variables' as adaptive resources and locate them, accordingly, somewhere quite early in the causal chain (after or among the objective independent variables). As to the order of 'well-being in work' (blocks B22 to B25) and 'well-being and health outside of work or in general' (blocks B26 to B29), the question is left undecided in the model. We choose to treat all these variables as final dependent variables of the same level: as explained technically in the next section, we refrain from predicting them from each other in any order.

6.1.4 Model specification in PLS analyses

Because we are interested in the path structure of the whole set of the independent and intermediate variables of the model, none of the variables are treated as exogenous, and all relationships among the latent variables B1 through B21 are specified. Due to the controversial character of the relations among the final dependent variables B22 through B29, however, the path relations between these variables are left unspecified; each of them is predicted by all earlier variables B1 through B21 but not by each other, and their correlative relations are studied separately.

The 'semi-final criterion variables' B14 through B21 are also treated in two ways: first, they are entered in the PLS analyses as predictors of the final dependent variables and

of each other (in the order given in Table 8) in addition to being dependent variables for B1 through B13. Second, their correlative relations are studied separately.

Thus, the hypothetical path matrix (the inner structure among the latent variables) for the first PLS runs (for each research group separately) contains units for all paths between variables B1 through B21 as well as for the paths from B1 through B21 to criterion variables B22 through B29, and zeros for the paths between B22 through B29. No differentiated weight modifiers for different inner relations are used, i.e. all relations are of equal interest in this study.

All outer relations (the relations of the manifest variables to the corresponding latent variables) are specified as being inward or productive: the latent variables are interpreted as being 'caused' by the manifest variables.

The model reduction after the first PLS runs is performed separately for each of the four teaching level groups. A semi-conservative strategy is applied: before the second set of runs all paths with a probability of $p = .26$ or higher for the three groups of comprehensive school teachers, and of $p = .31$ or higher for the smaller group of secondary school teachers (i.e. paths with corresponding F-values of about 1.200 in all groups) are deleted from the models. In the four additional runs to follow in succession, path deletion points of $p = .16$, $p = .10$, $p = .10$, and $p = .08$ are used in the case of the three larger groups and values of $p = .21$, $p = .16$, $p = .16$, and $p = .12$ for the group of upper secondary teachers. Thus a very severe reduction of the models is deliberately avoided and some rather weak paths - some of them insignificant - are retained in the models to be presented as final results. This procedure is motivated by the aims of the study. We are more interested in describing the natural path structure among the latent variables than in maximizing statistical prediction of the dependent variables.

No model simplification based on the outer relations (i.e. by deleting the manifest variables with low contributions to the latent variables) is performed.

6.2 Results

6.2.1 Order of presentation

The basic results of the path analyses with 29 latent variables are shown in Tables A4.1. through A4.12. in Appendix 4. Tables A4.1. through A4.4 contain the direct path coefficients (inner relations matrices) retained in the models for each of the four teaching level groups. The total path coefficients (reduced forms matrices, i.e. the direct path coefficients added by the sums of the products of the direct coefficients contained by all indirect paths between the independent and dependent variables) can be seen in Tables A4.5. through A4.8. Finally, Tables A4.9. through A4.12. show the correlations among the latent variables created by the PLS procedure and used, in effect, as starting points for the path analysis step of the PLS analysis. These results on the inner relations between the latent variables in Appendix 4 form the basis for the figures and comparative tables to be presented in the text.

The results on the outer relations, i.e. the relations between the manifest research variables and the latent variables are presented in Table 9 in the text and they are used for interpreting the meaning and content of the latent variables. The four correlation matrices of the manifest variables (input matrices for the PLS analyses) are not included in this report. They are, however, available from the author upon request. The tables mentioned above concern the results for the whole model with 29 latent variables containing 75 or 77 manifest research variables. Thus they form an integrated unity (for each group) where all relationships are interdependent and revealed as parts of the whole. For the sake of readability, the following discussion on the results progresses step by step focusing on sub-problems.

The results on the outer relations are presented first without any detailed discussion in Section 6.2.2. Composition of the latent variables. Then, the results on the inner relations are presented and compared in Sections 6.2.3. Background, work, and psycho-social working situation, and 6.2.4. The effects upon psychological well-being and health.

Section 6.2.3. is further divided into semi-hierarchical sub-sections as follows: the structural relations between the latent variables B1 through B21, i.e. the relations between (I) Local environment and school, (II) Personal background situation, (III) Work, and (IV) Psychosocial working situation are discussed in two sub-sections: firstly, in Section 6.2.3.1. a general view on the universal (common to all different teaching level groups) path structure of the relations between variables B1 through B21 is given. Secondly, in Section 6.2.3.2. a more detailed discussion and comparison of the teaching level groups is given concerning (a) the relationships between the more or less objective independent variables of the study (the

latent variables B1 through B13) in Section 6.2.3.2.1.; while (b) the relations of the 'psycho-social working situation' variables B14 through B21 - to each other and to the independent variables B1 through B13 - are examined in more detail in Section 6.2.3.2.2.

Finally, the relations between and the effects upon the final dependent variables B22 through B29 are examined in Section 6.2.4.

6.2.2 Composition of the latent variables

The relations of the manifest variables to the latent variables created by the first step of the PLS procedure for the four teaching level groups are given in two ways in Table 9. The figures in columns 'w' (for 'weight') present the multiple regression coefficients of the manifest variables upon the corresponding latent variables. They could be used when computing standard values of a latent variable from standardized values of the corresponding manifest variables. The simple regression coefficients in columns '1' (for 'loading') more concretely present the relations of a latent variable to its manifest indicators and they are used for conceptualizing the concrete nature of the latent variables. It is to be remembered, however, that the latent variables created by the PLS procedure do not represent latent variables in the same sense that the factors revealed by factor analysis are sometimes interpreted as doing. They are certain linear compounds of the manifest variables that satisfy the specifications of the path model tested together with the structure of the correlations among the manifest variables.

A general inspection of Table 9 reveals that most latent variables are very similar for all four groups of teachers. For instance, the latent variable for block B1 COMMUNTY is strongly and evenly related to the three manifest variables contained by the block and apparently represents a general dimension of urbanness of the school environment. On the other hand, a number of distinct differences between the groups can be found. To illustrate this three examples are presented below.

The latent variable B6 FAMILY is similar for all groups relating strongly to whether or not the subject has children who need day-care (in effect, preschool age children). The regression coefficient of the other manifest variable (V13 MARRIED), however, is different for different groups: a relatively high positive loading is shown by the group of upper secondary teachers but not by the three groups of comprehensive school teachers.

As to the latent variable B7 EDUCATN, the major discrimination among the comprehensive school teachers of grades 7-9 is whether or not one has completed a higher academic degree.

Table 9. Relations between latent and manifest variables (outer relations) for teachers by main teaching level. Decimal points omitted.

Block and Variable in block	Main teaching level							
	COMPR1-3		COMPR4-6		COMPR7-9		UPPERSEC	
	w	l	w	l	w	l	w	l
B1 COMMUNTY								
V1 NINHABTS	32	81	09	76	55	94	78	98
V4 DENSPOP	63	95	61	96	24	82	25	80
V5 URBOCCU	17	86	38	90	33	88	04	77
B2 REFOYEAR								
V3 REFOYEAR	100	100	100	100	100	100	100	100
B3 SCHOSIZE								
V7 SCHOSIZE	100	100	100	100	100	100	100	100
B4 SEX								
V11 SEX	100	100	100	100	100	100	100	100
B5 AGE								
V12 AGE	100	100	100	100	100	100	100	100
B6 FAMILY								
V13 FAMSTAT	-17	13	21	42	-08	32	62	84
V14 CHILDREN	104	99	93	98	103	100	59	82
B7 EDUCATN								
V15 HIDEGREE	41	47	93	96	101	100	-34	-29
V16 EXTRAED	89	91	29	38	-08	02	96	94
B8 PROFBGND								
V17 COMTEACH	100	100	91	98	41	-50	34	-27
V18 PRITEACH	08	-08	-22	-48	121	80	152	72
V19 STATEACH	07	-09	-02	-14	75	32	106	00
B9 TEASUBJ								
V21 CLASSTEA	100	100	100	100	-	-	-	-
V22 LANGTEA	-	-	-	-	109	76	03	-81
V23 MATHTEA	-	-	-	-	51	06	99	84
V24 MODNTEA	-	-	-	-	65	22	57	33
B10 NPUPILS								
V25 NLEVELS	-38	-29	-14	-02	20	18	02	22
V26 NCLASSES	91	67	71	85	-18	00	98	89
V29 NPUPILS	19	39	21	76	14	51	-09	33
V30 CLSIZE	57	37	41	55	92	97	-43	-37
B11 NCOURSES								
V26 NSUBJCTS	100	100	97	100	108	94	55	81
V27 NCOURSES	-08	-11	08	45	-36	04	64	87
B12 WORKHRS								
V31 CLHOURS	23	33	89	82	-40	-33	95	92
V32 OTHWSCH	16	29	36	33	-42	-33	36	22
V33 WKHOMEW	45	81	-01	12	73	83	04	00
V34 WKHOMES	59	87	42	37	25	49	-20	-22
B13 FREETIME								
V35 LEISWEEK	50	89	61	93	82	98	69	94
V36 LEISSASU	60	93	49	88	24	80	43	83

(continues)

Table 9. (continued)

Block and Variable in block	Main teaching level							
	COMPR1-3		COMPR4-6		COMPR7-9		UPPERSEC	
	w	l	w	l	w	l	w	l
B14 SUPPAUTH								
V45 SUPPAUTH	76	93	91	99	81	96	63	86
V51 SUPPPUBL	40	73	19	56	32	71	56	82
B15 STAFFREL								
V38 TEACOOP	-43	-11	-44	-19	09	33	-08	07
V40 TEARELAT	97	92	66	85	46	82	20	66
V41 HEADREL	-02	57	21	64	22	67	36	76
V42 SUPPCOLL	27	62	35	64	52	87	65	93
B16 INFLUENC								
V44 INFLUENC	100	100	100	100	100	100	100	100
B17 PUPILREL								
V46 TEAPUP	48	80	33	72	64	90	84	95
V47 PUPILBEH	68	90	80	96	48	81	33	62
B18 PARNTREL								
V39 PARNCONT	44	73	54	80	44	81	45	67
V49 PARNTREL	67	91	54	83	43	82	51	79
V50 SUPPPARN	12	60	20	61	38	77	39	75
B19 MATERSAT								
V52 SATROOMS	-28	29	-22	39	-06	57	24	70
V53 LEARNMAT	55	70	47	70	62	85	54	81
V54 PHYSCOND	79	88	83	91	60	84	48	82
B20 SCHEDSAT								
V55 SCHEDTEA	-29	28	02	36	75	95	27	68
V56 SCHEDSOC	112	97	99	100	38	77	84	97
B21 OCCUOPTI								
V61 OPTWORK	68	93	56	84	61	90	64	85
V62 OPTMATER	-03	15	-05	18	14	38	01	38
V63 OPTECON	15	55	29	67	19	65	60	83
V64 OPTAUTON	08	58	40	71	18	63	-04	52
V65 OPTSTATS	33	76	11	59	22	71	-03	54
B22 WKFACIL								
V57 TEACHFAC	64	87	78	86	68	82	38	74
V58 OTHERFAC	45	74	-06	31	16	48	57	78
V59 TRAINTEA	20	50	42	66	05	53	34	57
V60 TRAINOTH	02	38	16	42	50	67	17	51
B23 PSYWORK								
V70 WORKANX	36	61	50	79	53	84	44	80
V71 FATIGUE	77	90	48	70	37	70	42	67
V73 WKSOCEST	34	53	37	61	36	63	39	64
V75 WSELFEST	-14	28	-33	21	-03	46	-20	41
V76 WORKMEAN	-14	34	20	58	14	66	30	69
B24 JOBSATSF								
V72 JOBSATSF	100	100	100	100	100	100	100	100
B25 PROFACTV								
V66 PUPLACTV	61	83	98	100	90	98	90	98
V67 PROFACTV	60	83	05	36	21	56	20	58

(continues)

Table 9. (continued)

Block and Variable in block	Main teaching level							
	COMPR1-3		COMPR4-6		COMPR7-9		UPPERSEC	
	w	l	w	l	w	l	w	l
B26 PSYHOME								
V77 HMSOCEST	30	58	05	37	17	48	00	44
V79 HSELFEST	11	57	-01	37	04	39	46	70
V80 HOMEMEAN	02	61	01	43	05	50	-03	61
V81 PSYSYMPT	81	94	98	100	90	98	77	91
B27 LEISACTV								
V68 ORGSNACT	100	100	86	78	101	99	100	100
V69 RECRACTV	01	13	-64	-53	-12	00	02	-01
B28 PSYSOM								
V82 ACHES	44	85	100	93	49	77	57	88
V83 CIRCULTR	38	79	-01	48	69	83	57	88
V84 RESPIRTR	31	59	22	50	26	49	-01	33
V85 STOMACH	22	65	-35	10	-41	18	-01	51
B29 HEALTH								
V86 GENHEALT	32	65	00	46	11	62	18	52
V87 ILLNESS	44	79	55	78	43	73	73	87
V88 MEDICIN	52	80	40	69	54	79	39	64
V89 ABSENCES	05	41	45	66	33	57	09	30

w = weight: multiple regression coefficient
l = loading: simple regression coefficient

The main discrimination among the upper secondary teachers is, instead, whether or not one has taken extra courses in educational subjects. The two groups of lower level teachers are located between these two extremes.

Block B8 PROFBGND (as well as B9 TEASUBJ) presents an example where the latent variables for the different groups show reversed meaning. The main differentiation among the two lower level groups is whether or not one was a teacher in the communal school system before the school reform. Among the upper level teachers as well as the upper secondary teachers, a high value on this latent variable is given to persons who were teachers in a private secondary school (as contrasted with communal schools or not having worked as a teacher at all) before the reform.

Similarly, the meaning of the latent variable B9 TESUBJ is 'class teacher vs. subject teacher' in groups COMPREH 1-3 and COMPREH 4-6, 'language teacher vs. some other teacher' in group COMPREH 7-9, and 'teacher in mathematical subjects vs. language teacher' in group UPPER SEC.

Without going into further detail in Table 9, it is worth noting at this stage that the group differences in the composition of the latent variables present one part of the path structure differences between the groups. Differences in the path structure are partly produced and interpretable by differences in the meaning of the latent variables. On

the other hand, differences in the path structures have produced the different latent variables: the latent variables are formed so that a maximal description of the inner structures is achieved. Thus, Table 9 is to be continuously referred to while examining, interpreting and comparing the path structures for the different teacher groups in the sections to follow.

6.2.3 Background, work, and psycho-social working situation

6.2.3.1 Common structure

Tables A4.1. through A4.4. (in Appendix 4.) are first examined in order to find some general pattern (common for the teachers of the different school levels) of the inner relations between the latent variables B1 through B21. The results are illustrated in Figure 1. Double lines indicate paths significant for all four groups and single lines are drawn for the paths significant for three of the four groups. The level of significance used is $p < .050$ for groups COMPREH 1-3, COMPREH 4-6 and COMPREH 7-9, and $p < .060$ for the smaller group UPPER SEC.

According to the double lines in Figure 1. the 21 latent variables would be grouped into four totally separate systems that correspond to the super-blocks (I) Local environment and school, (II) Personal background situation, (III) Work, and (IV) Psycho-social working situation.

The urbanness of the local environment (B1) is associated with the year of school reform (B2) and with the school size (B3). This shows two self-evident facts about the Finnish school: the bigger cities and the more developed parts of the country were the last to adopt the new school system; and big schools are more probably located in densely populated environments than in the rural countryside.

The second cluster common to all groups is formed by the personal background variables B4 SEX, B5 AGE and B6 FAMILY connected with the amount of totally free time B13 FREETIME. Older people less often than younger people have a family with young children, and those who have children have less free time. Moreover, female teachers have less free time than male teachers in all teaching level groups. The professional background variable B8 PROFBGND is associated with age in all groups. B7 EDUCATN, however, is connected with other background variables in three groups only.

Three double lines bind together the latent variables B9 TEASUBJ, B10 NPUPILS, B11 NCOURSES, and B12 WORKHRS in the third super-block. The teaching subject is associated with the number of different subjects/courses taught by a teacher and the number of pupils/classes is associated with the number of subjects/courses as well as with the amount or distribution of time spent working. Without going into more detail here - some of these associations are complicated by differences in the composition of the latent variables - one can state that this cluster, too, is in principle very clear

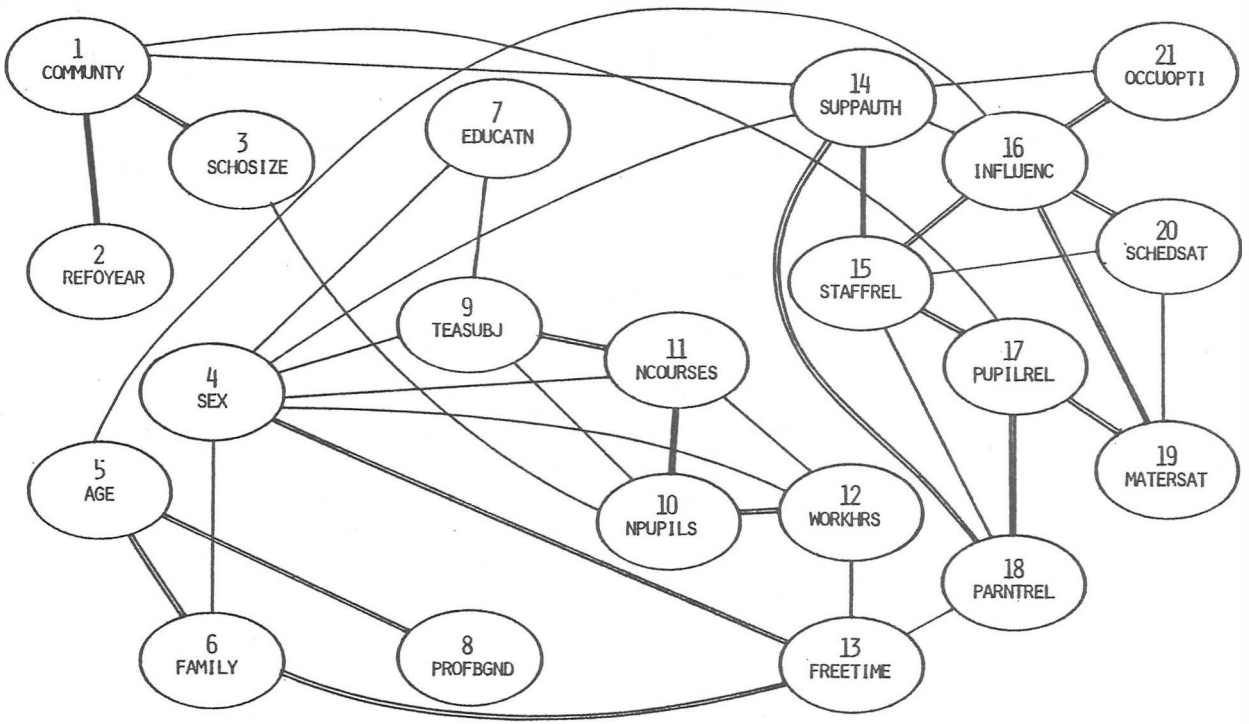

FIGURE 1. Path diagram illustrating common relations between local environment, personal background situation, work, and psychosocial working situation.

LEGEND: Single line = path significant in three of the four teaching level groups,
Double line = path significant in all four teaching level groups.

and easy to comprehend. As to the causal order of the variables, it is uncertain whether B10 NPUPILS should precede or follow B11 NCOURSES.

At least one double line connects all the psycho-social working situation variables B14 through B21 with each other. The direction of these relations, too, is common for all groups: positive ratings of the help and support from school authorities (B14) and staff relations (B15) are associated with positive ratings of the possibilities of influencing one´s own work (B16) and of the pupil and parent relations (B17 and B18) as well as - directly or indirectly - with positive ratings of the material prerequisites and working conditions (B19), of the time-table (B20) and occupational prospects. It is very possible that this uniform pattern of connections mainly - or partly - reflects only one common ´latent variable´ underlying all these variables, that is, satisfaction with (or satisfactoriness of) the psycho-social working situation.

There are no double lines in Figure 1. for the paths between the four latent variable clusters. Their independence of each other is, however, somewhat weakened if the single lines for the paths significant in three of the four groups are taken into account. There are 20 such paths, and about ten of them are paths between the four super-blocks representing different systemic levels. On the other hand, ten of these 20 paths fail to reach statistical significance, particularly the smallest group, i.e. the upper secondary school teachers. Thus, some universal associations, although weak, between variables from different levels are implied.

The latent variable B1 COMMUNTY is in three groups associated with two variables of social relations (B14 SUPPAUTH and B17 PUPILREL). These relations are better in less urbanized environments. In addition, a big school (B3) implies more pupils taught by a teacher / bigger classes (B10) than a small school.

B4 SEX and B5 AGE both show one significant effect upon social relations in three groups. Female teachers rate the help and support from school authorities and from public opinion (B14) lower than males. Older teachers more often than younger teachers feel that they can exercise some influence upon their working conditions (B16)

Four of the single-line paths from B4 SEX associate it with education and work. These associations, however, are not quite uniform in content. More or less general tendencies shown are the following: females more often than males have completed a higher academic degree (and, maybe, fewer extra studies in educational subjects), are language teachers, teach a smaller number of different subjects/courses, and have a smaller number of class hours per week (partly in proportion to hours spent working outside classes).

B5 AGE is in three groups associated with B8 PROFBGND. This association reflects partly the fact that the manifest variables in block B8 are dummy variables and that many of

the younger teachers have started teaching after the school reform (i.e. they do not have any professional background represented by the variables).

The background variable B7 EDUCATN is in three groups associated with B9 TEASUBJ, mainly because the subject teachers of the comprehensive school more often than class teachers have a higher academic degree.

Finally, it can be noted that there is a weak effect of B12 WORKHRS upon B13 FREETIME in three groups. It can be seen that the amount of free time depends much more on the personal background situation than on the hours spent working.

To sum up the path structure common to all four teaching level groups, we can state the following: the 21 latent variables are divided into four groups representing four systems of different levels: (I) Local environment and school, (II) Personal background situation and free time, (III) Work, and (IV) Evaluative measures of the psycho-social working situation. The relations within these super-blocks on the whole agree very well with what one could expect even on the basis of a very superficial knowledge of the Finnish school system. Between the four systems there are no significant paths common to all four groups. However, some such paths common for three groups can be found. They represent mostly associations of the local environment with social relations and associations of the personal background situation - especially sex - with work.

6.2.3.2 Group-specific structures

Figures 2 through 5 show the path relations between the latent variables B1 through B21 separately for the teaching level groups COMPREH 1-3, COMPREH 4-6, COMPREH 7-9 and UPPER SEC. The figures are based on the direct path coefficients in Tables A4.1 through A4.4 in Appendix 4, respectively. Only the paths with Beta coefficients of an absolute value of .16 or higher are shown in the figures, i.e. many weaker paths, although significant, are omitted, especially for the groups of comprehensive school teachers. The absolute value of a coefficient is indicated by the type of line as follows: a single line for values .16 to .24, double line for lines for .45 to .54, five lines for .55 to .64, and six lines for coefficients of .65 or higher. The sign, + or -, of a coefficient is given in the ellipse representing the dependent variable.

In the following two sections we concentrate, first, on examining and comparing the relations among the background and work variables B1 through B13, and then, on the effects of these upon the psycho-social working situation variables B14 through B21. In these comparisons, we content ourselves with a descriptive level without statistical tests for the differences between the single path coefficients contained by the path models differently reduced for different groups. Some basis for evaluating the group differences, however, is presented by the fact that the standard errors of the single

Beta coefficients in this study vary around the value .04. Further, the examination of the group differences in the path structures implies continuous reference to Table 9. (Section 6.2.2.) for the group differences in the meaning of the latent variables.

6.2.3.2.1 Background and work

The community and school variables are strongly interrelated in all groups. The effect of B1 COMMUNTY upon B3 SCHOSIZE, however, is stronger among the lower level teachers (groups COMPREH 1-3 and COMPREH 4-6) than among the upper level and upper secondary school teachers. The corresponding Beta values are around .75 for the two former groups as compared with the values around .40 for the latter groups. This accords with the fact that the variance of the school size as well as that of the urbanness of the local environment of schools is greater for the lower level schools than for the upper level schools. Similarly, the effect of B3 SCHOSIZE upon the number of pupils taught by a teacher / class size (B10) is stronger in groups COMPREH 1-3 (Beta = .26) and COMPREH 4-6 (Beta = .37) than in groups COMPREH 7-9 (Beta = .19) and UPPER SEC (Beta nonsignificant). The use of - or the possibilities of using - specialized subject teachers also depends on the school size at the two lower school levels: B3 SCHOSIZE shows an effect of Beta = -.27 upon B9 TEASUBJ in group COMPREH 1-3 and of Beta = -.14 in group COMPREH 4-6..

The latent variable B2 REFOYEAR turns out to be practically unrelated to the other variables (except for its dependence on B1) among the groups of lower level teachers. This is in line with the fact that the reform implied only minor changes at these school levels. The two upper groups show one common effect of B2 REFOYEAR, that is upon B8 PROFBGND, of size Beta = .28 and .27. This may partly reflect the fact that more time has elapsed since the reform to enroll new teachers 'without professional background' in the municipalities with an early reform than in those which were among the last to adopt the new school system. On the other hand, there have been more private secondary schools in the latter municipalities than in those with an early reform. In addition, B2 REFOYEAR shows an effect Beta = .21 upon B5 AGE in the group of upper secondary school teachers. There may be more older upper secondary schools in the rich areas with the delayed reform, or, the higher teaching positions of the upper secondary schools are occupied by older teachers, especially in the municipalities with a delayed reform.

The structure of the relations between the personal background variables B4 SEX, B5 AGE, B6 FAMILY, B7 EDUCATN, B8 PROFBGND, and - if included here - B13 FREETIME in all groups relatively closely resembles what the groups show in common. A uniform effect of B6 FAMILY upon B13 FREETIME is shown by all groups; Beta varies between -.24 and -.31. Some group differences, however, can be seen. These are

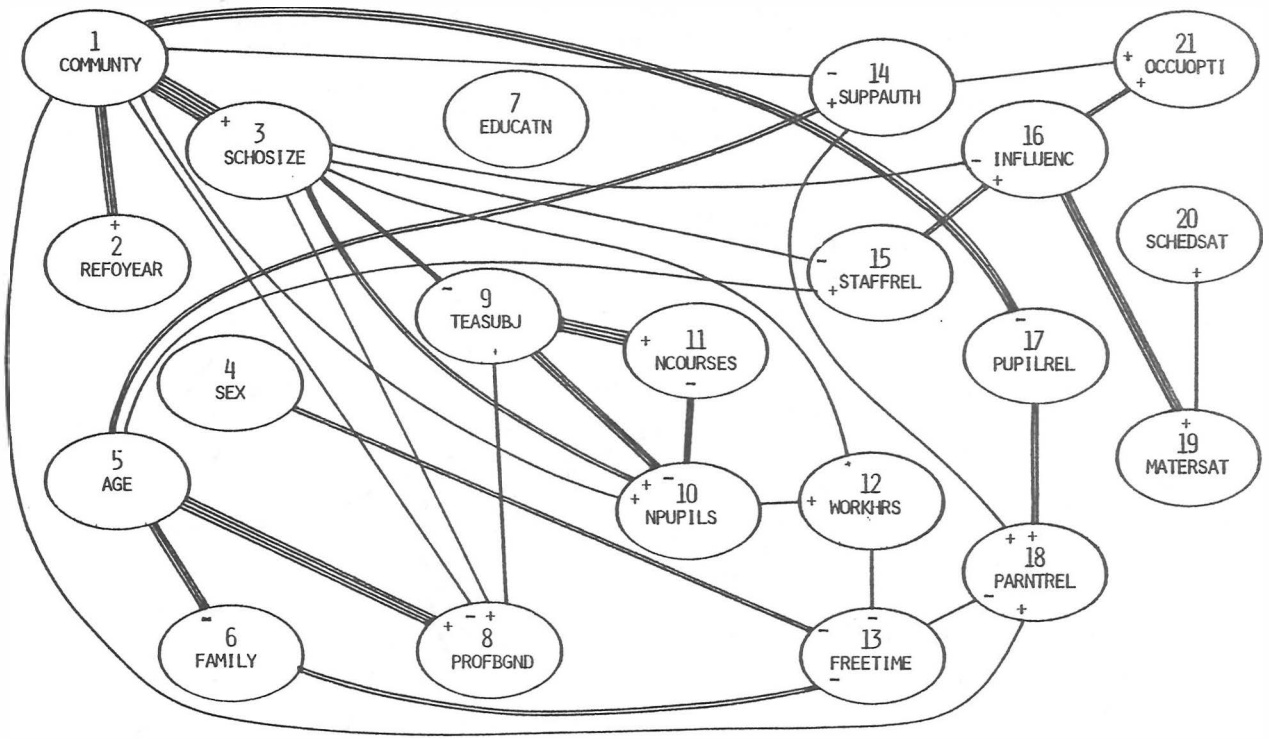

FIGURE 2. Path diagram illustrating relations between local environment, personal background situation, work, and psychosocial working situation. Group COMPREH 1-3: Comprehensive school teachers of grades 1-3, N = 463.

LEGEND: ——— = Beta .16 to .24, ═══ = Beta .25 to .34, ═══ = Beta .35 to .44, ═══ = Beta .45 to .54, ═══ = Beta .55 to .64, ═══ = Beta .65 or over

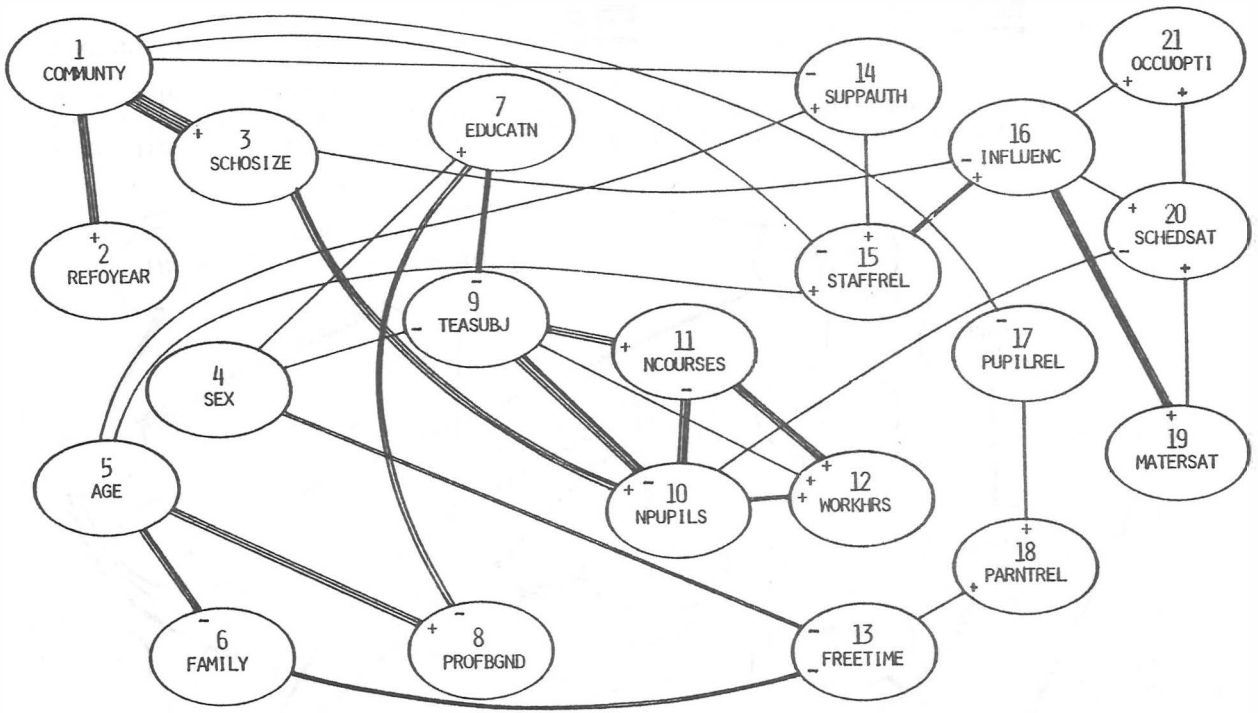

FIGURE 3. Path diagram illustrating relations between local environment, personal background situation, work, and psychosocial working situation. Group COMPREH 4-6: Comprehensive school teachers of grades 4-6, N = 576.

LEGEND: ——— = Beta .16 to .24, ═══ = Beta .25 to .34, ═══ = Beta .35 to .44, ═══ = Beta .45 to .54, ═══ = Beta .55 to .64, ═══ = Beta .65 or over

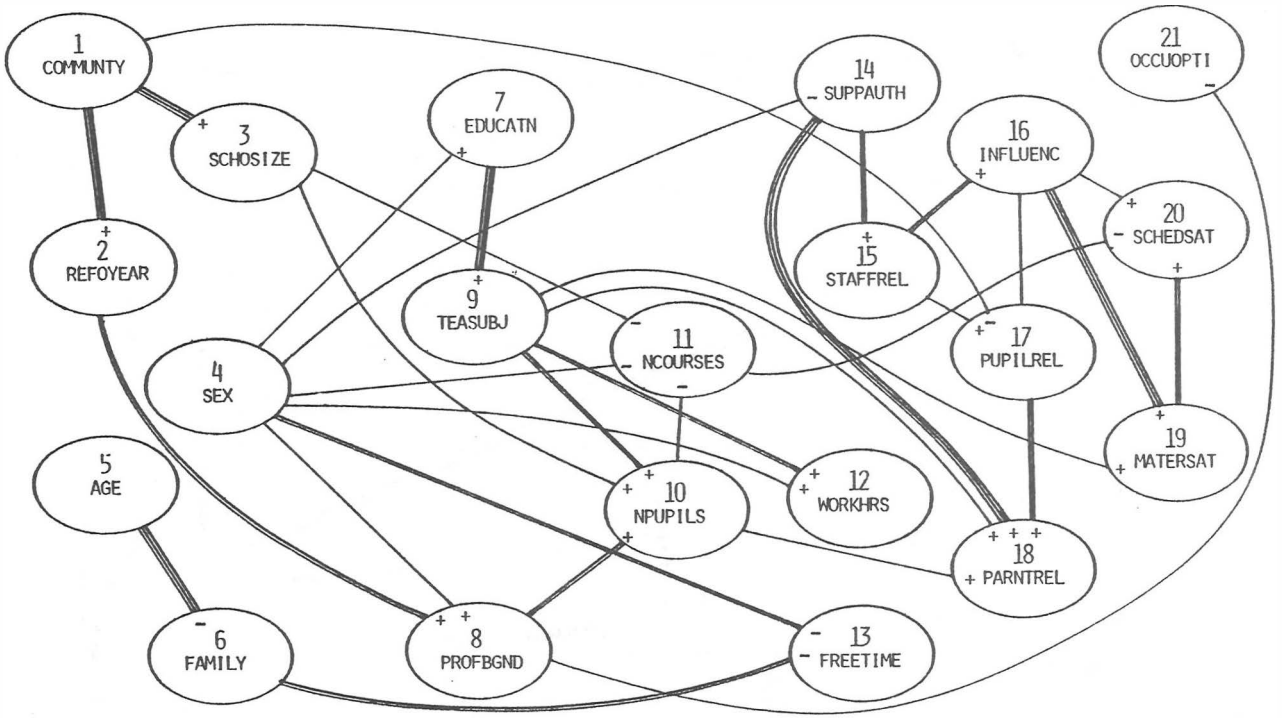

FIGURE 4. Path diagram illustrating relations between local environment, personal background situation, work, and psychosocial working situation. Group COMPREH 7-9: Comprehensive school teachers of grades 7-9, N = 646.

LEGEND: ——— = Beta .16 to .24, ═══ = Beta .25 to .34, ═══ = Beta .35 to .44, ═══ = Beta .45 to .54, ═══ = Beta .55 to .64, ═══ = Beta .65 or over

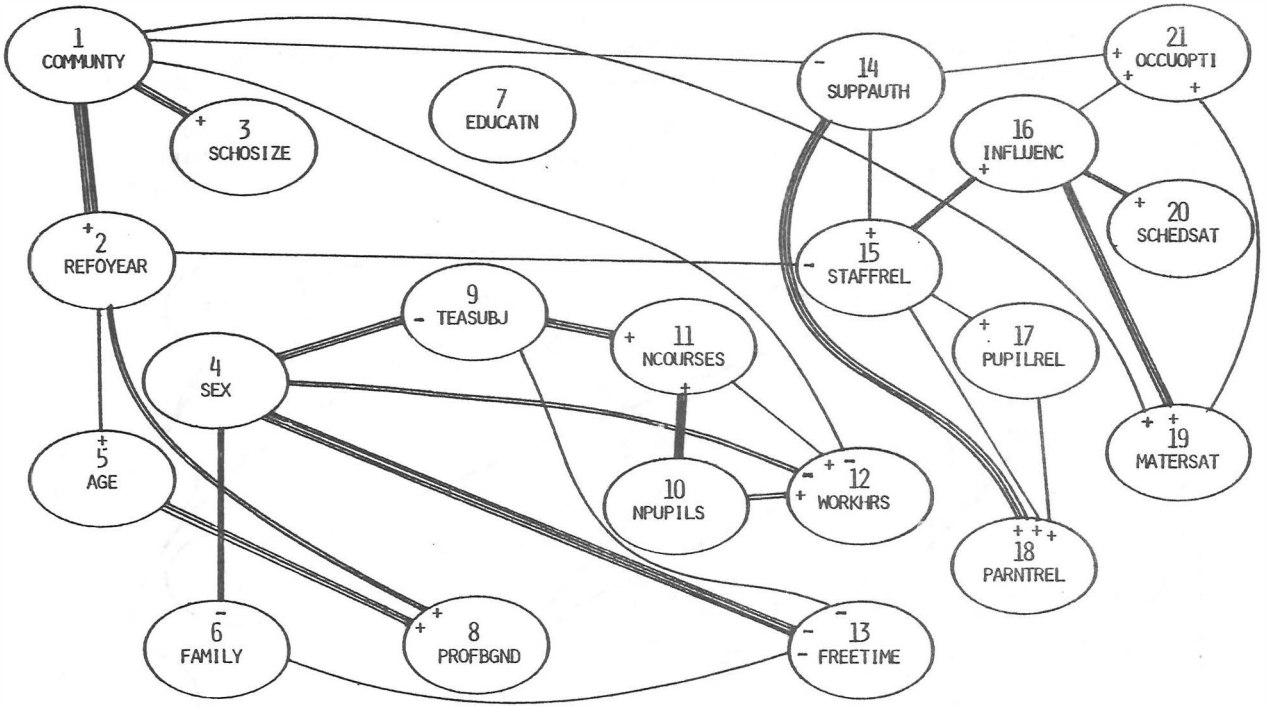

FIGURE 5. Path diagram illustrating relations between local environment, personal background situation, work, and psychosocial working situation. Group UPPER SEC: Upper secondary school teachers, N = 233.

LEGEND: ——— = Beta .16 to .24, ═══ = Beta .25 to .34, ═══ = Beta .35 to .44, ═══ = Beta .45 to .54, ═══ = Beta .55 to .64, ═══ = Beta .65 or over

summarized in what follows.

B4 SEX is more strongly associated with B13 FREETIME in group UPPER SEC (Beta = -.48) than in the other groups (Beta between -.26 and -.32). Slight but very interesting differences are seen in the effects of sex upon B6 FAMILY. The Beta value changes from a nonsignificant -.08 in group COMPREH 1-3 to a value of -.27 in group UPPER SEC: males more often than females have a family with young children and this holds true especially among the teachers at the higher school levels. Note, however, that the content of the latent variable B6 for group UPPER SEC slightly differs from that for the other groups (see Table 9).

Some degree of sex differentiation in education and/or the teaching subject (B7 and B8) is shown by the groups other than COMPREH 1-3. (One reason for fewer effects of sex in this group might be presented by the skewness of sex distribution - 90 % are females.) In groups COMPREH 4-6 and COMPREH 7-9, females more often than males have completed a higher academic degree (B7 EDUCATN) and teach languages (B9 TEASUBJ) as opposed to being class teachers (in the former group) or to teaching mathematical or practical subjects (in the latter group). Thus, the teaching subject is explained by sex directly as well as indirectly via education in these two groups. The strongest sex differentiation of the teaching subject is shown, however, by group UPPER SEC with a Beta = -.36 for the path from B4 to B9: males are over-represented among the teachers in mathematical subjects and females among the language teachers.

One more effect of sex, that upon B12 WORKHRS, is shown by the three groups other than COMPREH 1-3. Although different in sign, these effects are nearly similar in content - due to the differences in the composition of B12 (see Table 9): the number of class hours and the amount of out-of-class work at school is greater for males than for females. Parallel to this, the amount of out-of-class work at home is greater for females than for males in group COMPREH 7-9 and (only slightly) in group UPPER SEC.

One group difference in the effects of B5 AGE can be observed here. It shows a rather strong effect (Beta .35 to .53) upon B8 PROFBGND in the groups other than COMPREH 7-9. This result is apparently explainable by the fact that the professional background of the exceptional group COMPREH 7-9 is more heterogeneous than that of the other groups: this group has an even representation of older teachers with a background of private secondary school teacher, communal civic school teacher, or communal secondary school teacher. This being the case, age is not connected with any single pre-reform teacher category in this group, as is the case with the other groups where teachers have a more homogeneous background.

For a closer inspection of the relations among the variables describing a teacher's daily work (B9 TEASUBJ, B10 NPUPILS, B11 NCOURSES, and B12 WORKHRS) and the effects of the environment and background variables upon these, excerpts from Tables A4.1 to A4.8 in Appendix 4 are reproduced in

Table 10. Predictability of work variables and free time by local environment and personal background: Direct (Beta) and total (T) path coefficients for teachers by main teaching level. Decimal points omitted.

Predictor	Group	Dependent variable B9 TEASUBJ Beta	T	B10 NPUPILS Beta	T	B11 NCOURSES Beta	T	B12 WORKHRS Beta	T	B13 FREETIME Beta	T
B1 COMMUNTY	COMPR1-3	15	-05	17	38	..	-12	..	16	..	-01
	COMPR4-6	..	-22	..	42	..	-34	..	-07	..	-11
	COMPR7-9	-10	-04	..	18	..	-13	..	04	..	-04
	UPPERSEC	..	-02	..	..	..	-01	-17	-18	..	01
B2 REFOYEAR	COMPR1-3	..	01	..	-01	..	01	..	..	..	-01
	COMPR4-6	..	-05	07	09	07	00	09	11	-10	-14
	COMPR7-9	..	..	..	07	11	08	..	01	..	01
	UPPERSEC	..	-03	..	..	..	-01	..	-02	..	01
B3 SCHOSIZE	COMPR1-3	-27	-24	26	35	..	-20	17	19	..	-04
	COMPR4-6	-14	-17	37	45	-12	-37	-06*	-10	..	-03
	COMPR7-9	..	..	19	21	-22	-27	..	03	..	-02
	UPPERSEC	..	..	..	..	..	..	..	..	..	..
B4 SEX	COMPR1-3	..	02	..	-01	-10	-09	..	-03	-26	-22
	COMPR4-6	-19	-26	..	13	-08	-24	-11	-21	-32	-27
	COMPR7-9	14	20	..	14	-18	-24	20	28	-31	-32
	UPPERSEC	-36	-39	..	..	..	-14	-29	-31	-48	-34
B5 AGE	COMPR1-3	-12	00	..	00	..	..	..	..	-11	-06
	COMPR4-6	..	07	..	-03	..	06	..	03	..	07
	COMPR7-9	-07*	-09	..	-01	..	00	..	-03	-09	05
	UPPERSEC	-14	-16	..	..	..	-06	-10*	-11	..	06
B6 FAMILY	COMPR1-3	-09*	-07	..	02	..	-04	..	00	-29	-30
	COMPR4-6	..	..	..	..	..	..	..	..	-29	-29
	COMPR7-9	..	05	..	04	..	-01	..	02	-31	-32
	UPPERSEC	13	13	..	..	..	05	..	01	-23	-26
B7 EDUCATN	COMPR1-3	-11	-11	..	04	..	-06	11	10	..	-02
	COMPR4-6	-20	-34	..	17	..	-22	..	-09	..	04
	COMPR7-9	36	36	12	26	..	-10	..	14	..	-03
	UPPERSEC	-11*	-11	..	..	..	-04	..	-01	..	02
B8 PROFBGND	COMPR1-3	18	18	..	-06	..	10	..	00	-13	-15
	COMPR4-6	15	15	..	-07	05*	14	..	06	-10	-11
	COMPR7-9	..	..	30	30	-11	-17	..	04	..	-02
	UPPERSEC	..	..	..	..	..	..	..	..	..	..
B9 TEASUBJ	COMPR1-3			-36	-36	49	58	..	02	..	-07
	COMPR4-6			-49	-49	43	61	18	26	..	-02
	COMPR7-9			30	30	-09	-15	27	32	..	-05

(continues)

Table 10. (continued)

Predictor	Group	Dependent variable B9 TEASUBJ Beta	T	B10 NPUPILS Beta	T	B11 NCOURSES Beta	T	B12 WORKHRS Beta	T	B13 FREETIME Beta	T
	UPPERSEC			..	..	36	36	..	07	-17	-17
B10 NPUPILS	COMPR1-3					-25	-25	16	12	..	00
	COMPR4-6					-36	-36	33	19	..	-02
	COMPR7-9					-19	-19	14	14	..	-03
	UPPERSEC					44	44	29	37	..	..
B11 NCOURSES	COMPR1-3							14	14	-11	-14
	COMPR4-6							39	39	..	-04
	COMPR7-9							..	..	07*	07
	UPPERSEC							20	20	..	..
B12 WROKHRS	COMPR1-3									-21	-21
	COMPR4-6									-09	-09
	COMPR7-9									-13	-13
	UPPERSEC									..	..
Multiple	COMPR1-3	072		327		395		081		192	
R-square	COMPR4-6	258		490		631		192		190	
	COMPR7-9	179		315		218		195		207	
	UPPERSEC	213		..		336		342		204	

All paths removed from the models during model reduction are indicated by two dots /../.
* indicates nonsignificant paths retained in the models.

Table 10 in a comparative form.

Most of the relations among the work variables are the strongest in group COMPREH 4-6: class teachers (as compared with specialized teachers, B9) teach a smaller number of pupils (B10) in a greater variety of subjects (B11). A larger number of pupils is associated with a smaller number of subjects/courses, and a larger number of pupils and of subjects/courses is associated with a greater amount of work, especially out-of-class work at home (B12). The absolute values of the Beta coefficients for these five paths vary between .33 and .49 in this group. In addition, there is a weaker path (Beta = .18) directly from B9 to B12 indicating that the number of class hours is greater for class teachers than for specialized teachers. All in all, this pattern of relations reflects the essential differences in the work of a class teacher with many subjects as compared to that of a specialized subject teacher. An obvious explanation of why this structure so strongly dominates especially in group COMPREH 4-6 is the fact that this group more evenly than the others contains the teacher categories mentioned above: 86 % class teachers and 14 %

specialized or subject teachers.

Group COMPREH 1-3, too, consists of class teachers (91 %) and of specialized teachers (9 %) and, respectively, a strong effect (Beta = .49) of B9 TEASUBJ upon B11 NCOURSES is shown in Figure 2. Other relations between variables B9 through B12 are somewhat weaker for this group (although similar in content and direction) than in group COMPREH 4-6.

The structures of the relations among the work variables B9 through B12 for groups COMPREH 7-9 and UPPER SEC (both almost exclusively consisting of subject teachers) differ in many ways from each other and - of course - from those for the lower level groups. The interpretation (or, more exactly, reading) of these results is further complicated by the fact that the composition of the latent variables varies in these groups - they are partly reversed, partly in other ways different in meaning (see Table 9). If summarized separately, the results are as follows: in group COMPREH 7-9, teaching of languages (B9) is associated with a larger number of pupils taught by a teacher and bigger classes (B10 NPUPILS) and with a greater amount of out-of-class work done at home combined with a smaller number of class hours and a smaller amount of other work at school (B12 WORKHRS). Moreover, those with larger classes / larger number of pupils to teach (B10) teach fewer subjects (B11 NCOURSES). The absolute Beta value for these three effects varies between .19 and .30.

In group UPPER SEC, those teaching mathematical subjects - as compared with language teachers - teach a larger number of subjects as well as a larger number of different courses (B11 NCOURSES). Teaching many different classes (B10) is associated with teaching many different courses/subjects (B11) as well as with a large number of class hours (B12 WORKHRS). Finally, the number of class hours is to some extent explained by the number of subjects/courses taught. The absolute values of Beta coefficients for these four paths vary from .20 to .44.

To sum up, the teaching subject is the primary factor determining the organization of a teacher's work, i.e. the number and variability of pupil contacts and the variability of teaching contents implied by the work, as well as the amount of time used for different work duties. In the case of the lower level teachers of the Finnish comprehensive school, the main differences coincide with the distinction class teacher with many subjects vs. specialized subject teacher. For the teachers of the comprehensive secondary school as well as for the teachers of the upper secondary school (the two groups consisting almost exclusively of subject teachers), the main division lies between language teachers as contrasted with teachers in mathematical subjects. (It is probable that both of these should be contrasted also with teachers in practical and aesthetic subjects, especially in the group of comprehensive secondary school teachers. This, however, is not seen directly in the results because the dummy variable designating the latter teachers is not included in the analyses.) In group COMPREH

7-9 the teaching subject is associated mainly with class size / number of pupils and with out-of-class work at home. Among the upper secondary teachers, the main effects are upon the number of subjects/courses taught.

The school size is the only one among the environment variables showing notable effects upon a teacher's work. These effects are the strongest among the teachers of the comprehensive primary school, somewhat weaker among the teachers of the comprehensive secondary school, and no effects are shown by the upper secondary school teachers. Three roles are played by the school size in this connection: (a) it is the main mediator of community effects, (b) it shows direct effects upon the class size / number of pupils and upon the degree of specialization as regards the teaching contents, and (c) it influences the teaching subject (or subject specialization in the form of the distinction class teacher vs. subject teacher) which leads to indirect effects parallel to those mentioned above under (b).

Only a few effects of the personal background variables upon a teacher's work can be seen. These are practically all limited to the effects of sex and education upon the teaching subject. Sex differentiation of subjects is the strongest among the upper secondary teachers and negligible among the teachers of the lowest school level. Educational differentiation of teachers in different subjects is strongest at the intermediary school levels COMPREH 4-6 and COMPREH 7-9, the latter of which shows some direct effects of education and professional background upon the class size / number of pupils, too. Finally, some effects of sex upon the number of class hours and the amount of out-of-class work at home are seen at the upper school levels - females have fewer class hours in proportion to the amount of homework.

The amount of free time in personal use is totally independent of the local environment variables. The only effects upon it are those of sex and family situation. These are practically identical regardless of the teaching level: females and those with a family with small children have less free time than males and those without small children. Also the effects of work upon free time are negligible.

We have dwelt on the structures of the relations between the background and work variables at this length partly for methodological reasons: these relations are in many ways self-evident and interpretable by concrete features of the Finnish school system, teacher training and ways of organizing a teacher's work at different school levels. Thus, it is possible to evaluate the results given by the method of analysis used in this study by reference to a relatively well-known fact, i.e. what the results very probably should be. Generally, we can conclude that the results seem to be quite understandable, and many slight differences between the school levels are interpretable. This, of course, does not prove that the PLS path models are

equally valid as far as the subjective dependent variables of the study are concerned. However, a certain degree of reliance on the method can be retained when considering the less predictable results of the study.

6.2.3.2.2 Psycho-social working situation

Composition of the dependent variables

The latent variables represented by the variable blocks B14 SUPPAUTH, B15 STAFFREL, B16 INFLUENC, B17 PUPILREL, B18 PRNTREL, B19 MATERSAT, B20 SCHEDSAT, and B21 OCCUOPTI are quite similar in content for all groups (see Table 9). Almost all manifest variables are strongly loaded on the corresponding latent variables which thus quite well represent the variance of the original research variables in all groups. Two or three exceptions can be observed: V38 TEAINTR on the informal interaction and collaboration among teachers is only weakly - and also negatively among the teachers of the lowest school levels - correlated with the latent variable B15 STAFFREL, i.e. B15 is mainly a measure of emotional intra-staff relations.

Secondly, V52 SATROOMS shows relatively low loadings on the latent variable B19 MATERSAT in the two groups of lower level teachers. The satisfaction with learning materials and physical working conditions is mostly measured by B19 in these groups. Similarly, B20 SCHEDSAT is loaded by both of the satisfaction with schedule variables (V55 and V56) in groups COMPREH 7- 9 and UPPER SEC, but mostly by V56 SCHEDSOC alone in the two lower level groups.

Thirdly, it can be noted that B21 OCCUOPTI is primarily formed by manifest variables other than V62 OPTMATER (rather similarly in all groups). The variation in the degree of optimism in regard to work load and to the socio-economic status of the profession is represented by this latent variable.

As a further check of the comparability of the latent variables B14 through B21 for the four groups, their intercorrelations (Tables A4.9. to A4.12. in Appendix 4) are examined by means of factor analysis.

Two principal axis factors with an Eigenvalue of 1.00 or higher can be extracted for all teaching level groups, and 95.8 to 97.3 per cent of the common variance is explained by five factors. The varimax rotated two-factor and five-factor matrices are given in Tables 11 and 12.

The proportion of the total variance explained by two factors is 30.3 to 34.4 %, the higher values are shown by the upper school level groups. The interpretation of the factors in Table 11 is quite similar from group to group. The factors given first associate B16 INFLUENC with B19 MATERSAT and B20 SCHEDSAT as well as - more or less - with B15 STAFFREL and B21 OCCUOPTI. The main content of the second set of factors concerns relationships with parents (B18) and with school authorities (B14). Parts of B15 STAFFREL and B17 PUPILREL (in three groups) are explained, too, by these factors. The uniform picture is quite clear:

Table 11. Varimax rotated principal factors of psycho-social working situation variables for teachers by main teaching level. Two factor solutions.

Variable	Group/Factor								Group/Communality			
	1/1	2/1	3/2	4/2	1/2	2/2	3/1	4/1	1/C	2/C	3/C	4/C
B14 SUPPAUTH	.20	.24	.03	.12	.37	.42	.61	.52	.17	.23	.37	.28
B15 STAFFREL	.48	.38	.30	.32	.30	.44	.50	.39	.31	.34	.31	.25
B16 INFLUENC	.73	.69	.60	.64	.17	.26	.29	.29	.56	.55	.44	.50
B17 PUPILREL	.28	.28	.26	.22	.35	.45	.40	.18	.20	.28	.23	.08
B18 PRNTREL	.14	-.02	.09	.03	.71	.68	.72	.94	.52	.46	.52	.88
B19 MATERSAT	.54	.54	.63	.59	.18	.08	.15	.01	.32	.30	.42	.35
B20 SCHEDSAT	.38	.46	.57	.43	.21	.17	.00	.22	.18	.24	.34	.23
B21 OCCUOPTI	37	.29	.25	.42	.15	.07	.24	.03	.16	.09	.12	.18
Eigenvalues	1.47	1.34	1.31	1.29	.98	1.14	1.45	1.29	2.42	2.49	2.74	2.75

Groups: 1 = COMPREH 1-3, N = 463
2 = COMPREH 4-6, N = 576
3 = COMPREH 7-9, N = 646
3 = COMPREH 7-9, N = 646
4 = UPPER SEC, N = 233

Table 12. Varimax rotated principal factors of psycho-social working situation variables for teachers by main teaching level. Five factor solutions.

Group	Variable	Factor 1	2	3	4	5	Communality
COMPREH 1-3	B14 SUPPAUTH	.18	.54	.10	.08	.01	.34
	B15 STAFFREL	.22	.18	.58	.20	.17	.49
	B16 INFLUENC	.61	.11	.37	.14	.18	.57
	B17 PUPILREL	.14	.15	.15	.53	.11	.36
	B18 PRNTREL	.07	.45	.10	.32	.22	.37
	B19 MATERSAT	.45	.06	.11	.22	.30	.36
	B20 SCHEDSAT	.19	.08	.13	.11	.54	.37
	B21 OCCUOPTI	.42	.21	.05	.04	.08	.23
	Eigenvalue	.89	.62	.55	.51	.51	3.08
COMPREH 4-6	B14 SUPPAUTH	.13	.18	.15	.49	.18	.34
	B15 STAFFREL	.21	.67	.21	.25	.01	.60
	B16 INFLUENC	.55	.35	.18	.13	.22	.51
	B17 PUPILREL	.18	.15	.56	.13	.13	.41
	B18 PRNTREL	-.01	.11	.45	.41	-.03	.39
	B19 MATERSAT	.62	.07	.06	.08	.13	.42
	B20 SCHEDSAT	.30	.20	.22	-.02	.32	.29
	B21 OCCUOPTI	.13	-.01	.03	.11	.51	.29
	Eigenvalue	.89	.68	.67	.52	.48	3.24
COMPREH 7-9	B14 SUPPAUTH	.74	.15	.09	-.10	.18	.62
	B15 STAFFREL	.21	.16	.24	.13	.59	.49
	B16 INFLUENC	.13	.64	.11	.18	.30	.56
	B17 PUPILREL	.10	.20	.59	.06	.14	.42
	B18 PRNTREL	.48	.01	.47	.09	.23	.51
	B19 MATERSAT	.08	.50	.18	.34	.05	.41
	B20 SCHEDSAT	-.05	.27	.05	.63	.13	.49
	B21 OCCUOPTI	.25	.26	.12	.13	-.04	.17
	Eigenvalue	.92	.89	.70	.60	.56	3.67
UPPER SEC	B14 SUPPAUTH	.71	.08	-.08	.09	.15	.54
	B15 STAFFREL	.23	.21	.20	.51	.04	.40
	B16 INFLUENC	.20	.66	-.04	.32	.16	.60
	B17 PUPILREL	.05	.09	.64	.12	.10	.44
	B18 PRNTREL	.74	.12	.25	.22	-.13	.68
	B19 MATERSAT	-.02	.57	.14	-.04	.25	.41
	B20 SCHEDSAT	.13	.39	.09	.23	.06	.24
	B21 OCCUOPTI	.04	.24	.11	.04	.56	.38
	Eigenvalue	1.16	1.04	.56	.49	.46	3.70

feelings of power and influence are connected with satisfaction with working conditions, and the second cluster is formed by variables with a more direct reference to social relations.

The percentages of the total variance explained by five factors (Table 12) vary between 38.50 and 46.25 in the four groups. Somewhat less differentiation of the latent variables is shown - again - by groups COMPREH 7-9 and UPPER SEC than by the lower level groups. A high degree of similarity between the groups is seen in the content of the factors:

(I) Factors 1, 1, 2, and 2 (in groups COMPREH 1-3, COMPREH 4-6, COMPREH 7-9, and UPPER SEC, respectively) uniformly explain B16 INFLUENC together with B19 MATERSAT and - to a degree varying from group to group - B20 SCHEDSAT and B21 OCCUOPTI: experiences of power and having-a-say are combined with areas of exercising power and influence.

(II) Factors 2, 4, 1, and 1 cluster variables B14 SUPPAUTH and B18 PRNTREL together. Clearly, a variation in feelings about and experiences of interaction with important others outside the immediate work place (school) is represented by these factors.

(III) Factors 3, 2, 5, and 4 have B15 STAFFREL as a marker variable in all groups. In addition, B16 INFLUENC is more or less explained by these factors. This shows an obvious fact: perceived possibilities of influencing one's own work are associated with the relations with colleagues (including the headmaster).

(IV) Factors 4,3, 3, and 3 are all associated with B17 PUPILREL and, especially in groups COMPREH 4-6 and COMPREH 7-9, with B18 PRNTREL. Thus, two roles are assigned by teachers to parents: on the one hand they are associated with the school through pupils, but on the other hand they represent people outside the school together with school authorities (factors II).

(V) Factors 5, 5, 4, and 5 form a group of less identical counterparts and are partly interpretable as residual factors or duplicates of factors (I) and (II). They explain B20 SCHEDSAT in three teacher groups and B21 OCCUOPTI in two groups and are to some extent combined with B16 INFLUENC and/or B19MATERSAT.

In conclusion, very few small group differences in the composition and factor structure of the latent variables B14 through B21 are shown by the results. Some details in the results of the factor analyses as well as some minor differences between the teaching level groups might be of interest in some other context. It seems, for instance, that the latent variable B15 STAFFREL is to a small extent explained by four or five factors in all groups, i.e. staff relations reflect or influence (in any case, they are associated with) almost all aspects of the psycho-social working situation. Secondly, one might note that the communalities for the variable B21 OCCUOPTI remain relatively low in three groups. And finally, the explanatory power of the factors explaining perceptions of school

authorities and parent relations is greater for groups COMPREH 7-9 and UPPER SEC than among the teachers of the comprehensive primary school.

Before discussing the main problems later in this section, we may so far conclude that the degree of similarity of the latent variables B14 through B21 in the different groups permits a direct comparison of the effects of the local environment, personal background situation and work on these variables in the different teacher groups. This task will be undertaken next.

Path relations among the dependent variables

In addition to Figures 2 to 5, Table 13 contains the direct and total path coefficients for the relations among the psycho-social working situation variables B14 through B21 as well as for the effects of variables B1 through B13 upon well as for the effects of variables B1 through B13 upon these.

In accordance with the results of the factor analyses discussed above, all four groups show two clusters of path connections in common among variables B14 through B21.

Perceived possibilities of influencing one's own working conditions B16 INFLUENC are associated with intra-staff relations (B15 STAFFREL, Beta = .29 to .32 in different groups) and with satisfaction with material prerequisites of work (B19 MATERSAT, Beta .36 to .40). Moreover, two weaker 'effects' of B16 are shown by all groups, those upon B20 SCHEDSAT (Beta = .10 to .28), and upon B21 OCCUOPTI (Beta = .15 to .26).

The quality of the relations with pupils' parents (B18) is significantly associated with the support received from school authorities and public opinion (B14 SUPPAUTH, Beta between .17 and .43) and with pupil behaviour and pupil relations (B17 PUPILREL, Beta between .17 and .29). The path from B14 to B18 is stronger for groups COMPREH 7-9 and UPPER SEC (Beta around .40) than for groups COMPREH 1-3 and COMPREH 4-6 (Beta around .20). In addition, a significant path from B14 to B15 is shown by all groups (Beta between .10 and .33, the weakest connection is shown by group COMPREH 1-3): those dissatisfied with school authorities tend to be dissatisfied with staff relations, too.

This close resemblance between the factor structures and path structures is, by no means, a surprise: both types of structure here represent the structures of the same correlation matrices. Something worth noting is that it is the two factor solutions that are so closely approximated by the path structures. Some finer details explained by the five factor solutions seem to remain outside the reduced path models (that are generated by the whole set of research variables, not only by the psycho-social variables alone).

Table 13. Predictability of psycho-social working situation variables by local environment, personal background situation and work: Direct (Beta) and total (T) path coefficients and proportions of variance explained, for teachers by main teaching level. Decimal points omitted.

Predictor	Group	Dependent variable B14 SUPPAUTH Beta	T	B15 STAFFREL Beta	T	B16 INFLUENC Beta	T	B17 PUPILREL Beta	T	B18 PRNTREL Beta	T	B19 MATERSAT Beta	T	B20 SCHEDSAT Beta	T	B21 OCCUOPTI Beta	T
B1 COMMUNTY	COMPR1-3	-24	-22	-14	-33	..	-25	-37	-41	24	00	..	-15	..	-09	..	-13
	COMPR4-6	-20	-20	-22	-29	-14	-37	-24	-37	..	-22	..	-15	..	-22	..	-09
	COMPR7-9	..	-05	..	02	..	02	-16	-12	15	08	-08	-04	10	08	..	-08
	UPPERSEC	-24	-24	..	-12	-13	-19	..	02	..	-13	-16	-21	..	-09	-14	-21
B2 REFOYEAR	COMPR1-3	..	..	..	..	..	..	..	00	..	00	..	..	..	00	..	00
	COMPR4-6	..	00	..	-02	..	-02	-09	-09	..	-01	..	-03	..	-04	..	-01
	COMPR7-9	..	01	..	04	..	02	..	03	..	04	..	..	..	00	..	-05
	UPPERSEC	..	..	-14	-14	..	-02	..	-03	..	-04	..	-01	..	-03	..	-03
B3 SCHOSIZE	COMPR1-3	..	02	-23	-22	-20	-28	..	-06	..	-07	..	-11	11	-07	..	-08
	COMPR4-6	..	00	..	-01	-17	-17	..	-02	..	-11	..	-02	..	-13	..	-05
	COMPR7-9	-10	-10	..	-02	..	00	..	02	-07*	-11	13	13	08	01	..	-04
	UPPERSEC	..	..	..	..	..	..	11*	11	..	02	..	02	..	06	..	02
B4 SEX	COMPR1-3	-13	-14	..	-01	..	00	..	01	..	01	..	..	08*	09	..	-02
	COMPR4-6	..	-02	..	-06	..	-01	..	-02	09	00	..	00	..	-03	..	00
	COMPR7-9	-17	-19	..	-01	..	-09	..	01	..	-07	..	-03	..	-01	..	-12
	UPPERSEC	-15	-15	..	01	..	-07	..	03	-14	-20	..	00	..	06	..	03
B5 AGE	COMPR1-3	29	29	22	24	15	23	12	15	..	22	09	19	..	11	-11	02
	COMPR4-6	17	17	17	21	08	15	08*	13	..	12	10	11	..	07	..	04
	COMPR7-9	..	07	..	02	12	10	..	04	06	09	..	03	..	-02	-08*	-13
	UPPERSEC	..	..	..	02	10*	12	..	02	..	-02	..	05	..	05	-14	-09

(continues)

Table 13. (continued)

Predictor	Group	Dependent variable B14 SUPPAUTH Beta	T	B15 STAFFREL Beta	T	B16 INFLUENC Beta	T	B17 PUPILREL Beta	T	B18 PRNTREL Beta	T	B19 MATERSAT Beta	T	B20 SCHEDSAT Beta	T	B21 OCCUOPTI Beta	T
B6 FAMILY	COMPR1-3	..	00	..	..	..	..	..	-01	-09	-04	..	00	..	-02	..	01
	COMPR4-6	..	..	..	-02	..	-01	..	00	..	00	..	-04	..	-01	..	00
	COMPR7-9	-13	-14	..	-04	11	04	..	-01	..	-06	..	01	16	09	15	11
	UPPERSEC	..	..	-14	-14	..	-08	-11*	-14	..	-01	..	-05	..	-06	..	-04
B7 EDUCATN	COMPR1-3	..	01	..	00	..	..	-08	-10	..	-02	..	-01	-09	-13	..	00
	COMPR4-6	..	..	-10	-10	..	-02	..	-01	..	-10	..	07	..	-03	..	00
	COMPR7-9	..	-05	..	05	..	..	..	03	-07	01	09	16	..	07	11	08
	UPPERSEC	14	14	..	03	..	03	..	01	..	05	15	16	..	04	..	04
B8 PROFBGND	COMPR1-3	..	..	..	..	..	..	..	02	..	03	..	00	..	03	..	-01
	COMPR4-6	..	..	..	-01	..	-01	..	00	07*	10	-14	-18	..	-01	..	00
	COMPR7-9	..	00	12	12	..	06	09	14	..	08	..	04	..	06	-21	-18
	UPPERSEC	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
B9 TEASUBJ	COMPR1-3	..	00	..	..	..	..	13	13	..	05	..	02	12	17	-08*	-08
	COMPR4-6	..	..	..	00	..	-02	..	00	..	17	..	-09	..	08	..	01
	COMPR7-9	-10	-13	14	10	-09	-05	..	01	16	16	20	15	..	08	..	-01
	UPPERSEC	..	..	..	..	..	-03	..	..	14	16	..	-03	..	-06	..	-02
B10 NPUPILS	COMPR1-3	..	01	..	00	..	..	..	..	..	00	..	..	-12	-14	..	-01
	COMPR4-6	..	..	..	00	..	-01	..	00	..	-14	..	04	-21	-21	..	-04
	COMPR7-9	..	-01	..	00	10	09	..	03	17	14	..	02	..	06	..	02
	UPPERSEC	..	..	..	..	..	..	..	..	..	..	..	..	..	-06	..	-04
B11 NCOURSES	COMPR1-3	..	01	..	00	..	..	..	..	..	03	..	..	..	-02	..	-01
	COMPR4-6	..	..	..	00	..	-03	..	00	13	18	-13	-15	..	-03	..	-01
	COMPR7-9	..	..	..	..	..	01	-09	-09	14	12	..	06	-18	-17	..	01
	UPPERSEC	..	..	..	..	..	..	..	..	..	..	..	..	-14	-14	..	-02

(continues)

Table 13. (continued)

Predictor	Group	Dependent variable B14 SUPPAUTH Beta	T	B15 STAFFREL Beta	T	B16 INFLUENC Beta	T	B17 PUPILREL Beta	T	B18 PRNTREL Beta	T	B19 MATERSAT Beta	T	B20 SCHEDSAT Beta	T	B21 OCCUOPTI Beta	T
B12 WORKHRS	COMPR1-3	10	10	..	01	..	00	..	00	..	06	..	00	-15	-14	-11	-09
	COMPR4-6	..	..	..	-01	-07	-07	..	-01	13	13	..	-04	..	-02	..	-02
	COMPR7-9	-09	-09	..	-03	..	-04	..	-06	..	-04	-09	-12	..	-04	..	-04
	UPPERSEC	..	..	..	..	..	..	..	..	..	..	..	..	..	..	-11*	-11
B13 FREETIME	COMPR1-3	..	..	..	..	..	..	..	..	-17	-17	..	..	..	-02	..	..
	COMPR4-6	..	..	07*	07	..	02	..	01	..	01	12	13	..	03	..	00
	COMPR7-9	..	..	..	..	14	14	..	02	..	01	09	15	11	18	12	15
	UPPERSEC	..	..	..	..	15	15	..	..	-14	-14	..	08	..	05	..	04
B14 SUPPAUTH	COMPR1-3			10	10	..	03	..	01	23	25	..	01	..	04	17	18
	COMPR4-6			22	22	09	15	09	13	17	22	..	07	..	05	13	14
	COMPR7-9			33	33	13	23	08	19	38	48	..	11	-13	-02	13	23
	UPPERSEC			21	21	15	21	..	04	43	49	..	03	..	09	..	05
B15 STAFFREL	COMPR1-3					32	32	12	12	15	22	..	13	12	19	..	10
	COMPR4-6					29	29	12	15	12	15	..	13	..	09	-09*	-03
	COMPR7-9					32	32	21	26	14	21	..	16	12	22	..	09
	UPPERSEC					29	29	21	21	24	28	..	11	15	24	..	10
B16 INFLUENC	COMPR1-3							..	..	10	10	36	36	10	18	26	30
	COMPR4-6							11	11	..	02	39	41	18	26	16	20
	COMPR7-9							16	16	..	04	39	41	19	29	15	17
	UPPERSEC							..	..	..	..	40	40	28	32	18	25
B17 PUPILREL	COMPR1-3									29	29	14	14	..	06	..	02
	COMPR4-6									17	17	11	11	12	13	..	02
	COMPR7-9									26	26	13	13	..	03	09	12
	UPPERSEC									19	19	15	13	..	02	12*	15

(continues)

Table 13. (continued)

Predictor	Group	Dependent variable B14 SUPPAUTH Beta	T	B15 STAFFREL Beta	T	B16 INFLUENC Beta	T	B17 PUPILREL Beta	T	B18 PRNTREL Beta	T	B19 MATERSAT Beta	T	B20 SCHEDSAT Beta	T	B21 OCCUOPTI Beta	T
B18 PRNTREL	COMPR1-3											..	..	10	10	..	..
	COMPR4-6											..	..	..	..	..	..
	COMPR7-9											..	..	..	..	10	10
	UPPERSEC											-12*	-12	..	-01	..	-02
B19 MATERSAT	COMPR1-3													18	18	11	11
	COMPR4-6													16	16	..	03
	COMPR7-9													26	26	..	..
	UPPERSEC													11*	11	18	18
B20 SCHEDSAT	COMPR1-3															..	..
	COMPR4-6															16	16
	COMPR7-9															..	..
	UPPERSEC															..	..
Multiple R-square	COMPR1-3	142		194		236		238		245		198		228		160	
	COMPR4-6	072		196		281		205		246		230		188		083	
	COMPR7-9	090		124		186		150		388		278		239		191	
	UPPERSEC	102		090		197		077		408		220		183		163	

All paths removed from the models during model reduction are indicated by two dots /../.
* indicates nonsignificant paths retained in the models.

Effects upon psychosocial working situation

As noted earlier, no path from variables B1 through B13 to the psycho-social working situation variables is significant for all four groups. In addition to this, these paths are usually weaker than the associations (obviously of a non-causal kind) among the dependent variables.

Most effects of the local environment variables are shown by B1 COMMUNTY, some by B3 SCHOSIZE and practically none by B2 REFOYEAR. To study the last and least first, only two significant effects of B2 can be seen. Recency of school reform has a slight association with disturbances in staff relations (B15, Beta -.14) among the upper secondary teachers, and in group COMPREH 4-6 with disturbances in pupil relations (B17, Beta -.09). But, in general, the psycho-social working situation is very little affected by the reform.

The direct effects of B1 COMMUNTY are mainly upon the social relations variables and to a lesser degree upon the variables in the influence / satisfaction cluster. Most of these effects are negative, i.e. a high degree of urbanness of the local environment is associated with less satisfactory social relations. Some effects of B1 are indirect and, in these cases, mediated mainly by B3 SCHOSIZE or (somewhat misleadingly) by the psycho-social situation variables that happen to precede some other dependent variable of the same kind. Further, the effects of B1 COMMUNTY tend to be stronger among the teachers of the lower level of the comprehensive school than among the comprehensive secondary school teachers or upper secondary teachers. To illustrate the summarizing statements above, details from Table 13 and from Figures 2 to 5 are picked out in what follows.

The urbanness of the local environment has a rather strong negative effect on the relations with school authorities (B14), with other teachers (B15) and with pupils (B17) in groups COMPREH 1-3 and COMPREH 4-6. Moreover, staff relations and pupil relations are indirectly worsened through bigger schools to the effect that the indirect path coefficients of B1 upon these variables are for these groups between -.29 and -.41. Parent relations, however, are not negatively influenced by the urban environment. On the contrary, weak direct effects of a positive kind are seen in groups COMPREH 1-3 and COMPREH 7-9. These somewhat unexpected effects, however, are indirectly nullified by the negative effects of B1 COMMUNTY upon pupil relations.

In groups COMPREH 7-9 and UPPER SEC the effects of B1 COMMUNTY upon social relations are clearly weaker than at the lower school levels. There is a weak negative effect on pupil relations in the former group and an effect of size Beta = -.24 on the relations with school authorities (B14 SUPPAUTH) among the upper secondary teachers.

The effects of the community upon the influence and satisfaction variables vary rather unsystematically from group to group. The direct effects are small although the total effects in three groups seem to give the impression

that the possibilities of influencing one´s own working conditions are smaller and the degree of satisfaction with material working conditions is lower in more urbanized environments. In the case of the lower level teachers, these effects are partly mediated by the school size.

The effects of B3 SCHOSIZE are practically restricted to those shown by group COMPREH 1-3: bigger schools are connected with less satisfactory staff relations (B15, Beta = -.23) and with poorer possibilities of influencing one´s own work (B16, Beta = -.20). The latter effect is shown by group COMPREH 4-6, too. In group COMPREH 7-9, the authority relations are rated slightly lower and material working conditions better in big schools than in small schools. Group UPPER SEC shows a weak trend toward the pupil relations being better in bigger schools. All in all, it can be concluded that the effects of school size upon the psycho-social working situation are small, especially at the two higher school levels. One probable interpretation of this slightly surprising result might be that the school size variation range for the upper level schools is located in such a way that the effects upon the social systems are weak. The really small schools are better represented among the lower level schools and this might explain why stronger effects of school size are shown by the groups of lower level teachers.

As to the personal background situation variables, they have only few effects on the psycho-social working situation. Some more uniform effects are shown by B5 AGE, especially - again - among the lower level teachers: various social relations as well as the possibilities of influencing one´s own work and satisfaction with material working conditions tend to be rated slightly better by older teachers than by younger teachers. The effects of age upon the occupational prospects (B21 OCCUOPTI), however, tend to be negative. B4 SEX shows in three groups (COMPREH 4-6 is the exception) a weak effect upon B14 SUPPAUTH: the help and support from school authorities is rated lower by females than by males. - There is very little to say about family situation, education, professional background and free time except that - something of interest as such - their effects are very weak and unsystematic. It is to be noted, however, that teachers of the comprehensive secondary school with the background of teacher in a private secondary school before the school reform look at their occupational prospects slightly more pessimistically than their colleagues with other professional backgrounds.

The effects of different aspects of a teacher´s work (variables B9 through B12), too, are very rare and weak. To say something about the strongest of these effects, it can be noted that a teacher´s satisfaction with his/her schedule seems to depend negatively on the number of pupils/classes among the lower level teachers and on the number of subjects/courses among the upper level teachers.

To summarize the results focusing on the dependent variables, the following conclusions can be drawn:

Seven to fourteen per cent of the variance of B14 SUPPAUTH - one measure of teachers' relations with people outside their own school - is explained by the background and work variables studied. The main predictors are the urbanness of the local environment (negative effect), teacher's sex (lower ratings by females), and age (positive effect). The teaching level differences are small and rather unsystematic; the percentage explained is the highest among the teachers of the lowest grades of the comprehensive school. Practically no effects upon authority relations are shown by the variables that describe a teacher's daily work.

B18 PRNTREL, the other indicator of external social relations, is practically independent of all background and work variables in all the teaching level groups. The relatively high percentages of the variance explained by the model - 25 to 41 per cent for different groups - mainly reflect high correlations with other dependent variables under study, especially with B14 SUPPAUTH and with B17 PUPILREL.

Pupil relations and the ratings of pupils' behaviour B17 PUPILREL depend quite a lot on the urbanness of the school environment on the lowest school level but not at all at the highest level. The corresponding Beta coefficients for the successive school levels are -.37, -.24, -.16, and .00; the value for group COMPREH 1-3 is mentioned first. The behaviour of younger school children is far more influenced by the local environment than that of older children. Conspicuously few other effects upon pupil relations are shown by all other independent variables of the model. The total percentage of variance explained varies between 8 to 24 (the highest value shown is by group COMPREH 1-3) and is partly due to the correlations with B15 STAFFREL, one of the dependent variables.

B15 Staff relations, including teacher-headmaster relations, correlate positively in all groups with all other indicators of social relations as well as with the influence-satisfaction variables. More consistent effects of the independent variables are shown by group COMPREH 1-3 and, to a lesser degree, by group COMPREH 4-6: the urbanness of the local environment and the school size have negative effects and a teacher's own age a positive effect upon the ratings of staff relations. A weak negative effect of the recency of the school reform is shown by group UPPER SEC. The organization of a teacher's daily work does not influence his/her ratings of staff relations.

B16 INFLUENC, the central variable among those in the influence-satisfaction cluster, is explained for 19 to 28 per cent by the model, part of which is caused by the correlation with the dependent variables B14 SUPPAUTH and B15 STAFFREL. The direct effects of the independent variables are small; school size is of some (negative) effect among the teachers of the two lower school levels and age tends to increase the possibilities of influencing one's own work at all school levels. Among the teachers of the two upper levels, those who have more free time say more often than others that they can influence their working

conditions.

Satisfaction with the material working conditions (B19) and with the schedule (B20) correlate with each other and with B16 INFLUENC in all groups. 18 to 28 per cent of their variance is explained by the model. The direct effects of the independent variables are scattered and vary from group to group.

The dependent variable B21 OCCUOPTI differs in kind from variables B14 through B20 and is also less connected with these. It is somewhat correlated with B16 INFLUENC in all groups and with B14 SUPPAUTH in the groups of the comprehensive school teachers. Some scattered effects upon occupational optimism are shown by the independent variables. Urban environment and old age are associated with greater pessimism among the upper secondary teachers as well as a private school background among the teachers of the comprehensive secondary school. All in all, the inter-teacher variation in occupational prospects cannot be explained at all by the independent variables of the study.

6.2.4 Effects upon psychological well-being and health

6.2.4.1 Content and interrelations of the dependent variables

The manifest variable blocks B22 WKFACIL, B23 PSYWORK, B24 JOBSATSF, B25 PROFACTV, B26 PSYHOME, B27 LEISACTV, B28 PSYSOM, and B29 HEALTH were entered in the PLS analyses as dependent variables of equal status and without specifying the causal order or relations among them. Thus the corresponding latent variables are allowed to arise independently as if they were entered in the model one by one. This independence is, however, restricted by the fact that all of them were entered at the same time, i.e. the latent variables among the predictor variables are forced to predict all the dependent variables as parts of the same model.

In order to answer the question about the similarity of meaning and content of the dependent latent variables, their outer relations (Table 9) and intercorrelations (Tables A4.9. through A4.12. in Appendix 4) are examined first.

The latent variable B22 WKFACIL is positively loaded by all four manifest variables in all four groups. Some minor differences in the size of the loadings can be seen. Among the lower level teachers, the difficulties experienced in work which are more or less directly related to the tasks of teaching and up-bringing are mainly measured. Among the upper level teachers, all work sectors seem to be more evenly represented by the latent variable.

B25 PSYWORK, too, is practically similar in content in all teaching level groups and all five manifest variables included are loaded positively. Feelings of unwillingness and anxiety, fatigue, social esteem in work and meaningfulness in work form the main content of this latent

variable. The variance of self-esteem in work is somewhat less accounted for, especially among the teachers of the lower school levels.

Latent variable B24 JOBSATSF is formed by one manifest variable only and, equally in all groups, is a measure of general satisfaction in one´s occupation, as defined by willingness to continue in the profession.

In all groups, B25 PROFACTV is strongly loaded by pupil oriented activeness which forms its main content in group COMPREH 4-6. In the other three groups, other forms of occupation-related free time activity are also comprised by this latent variable.

The scale values of latent variable B26 PSYHOME are given almost directly by V81 PSYSYMPT in all groups. It is also correlated, however, with manifest variables V77 HMSOCEST, V79 HSELFEST and V80 HOMEMEAN, although to a lesser degree in group COMPREH 4-6. Thus, freedom from the general psychological stress symptoms of the type tiredness, restlessness and sleep disturbances is represented by this latent variable, and a smaller weight is given to the variables that refer more specifically to psychological well-being in family life and leisure.

B27 LEISACTV is strongly loaded by the manifest variable V68 measuring political and organizational leisure activity in all groups. The less reliable variable V69 RECRACTV measuring recreational and cultural leisure activity is not at all accounted for by this latent variable in three groups. A negative loading of V69 is shown by the group COMPREH 4-6, i.e., a bipolar dimension of organizational activity as contrasted with recreational/cultural activity is represented by B27 in this group.

All four variables measuring somatic stress symptoms or illnesses (V82 ACHES, V83 CIRCULTR, V84 RESPIRTR, V85 STOMACH) comprised by block B28 correlate positively with the latent variable B28 PSYSOM in all groups. The contribution of stomach symptoms, however, is very small in groups COMPREH 4-6 and COMPREH 7-9 as well as that of respiratory symptoms (including getting a cold) in group UPPER SEC. Thus, the interpretation of the latent variable as a measure of somatic reactions to (psychological) stress is somewhat questionable, especially in the intermediate school level groups. Because V82 ACHES shows high loadings in all groups, one can assume that some kind of stress tension is uniformly measured.

The last dependent variable B29 HEALTH is rather evenly composed of the four variables of state of health and health behaviour comprised by the block. The variance of sickness absence is, however, only to a lesser extent accounted for among the teachers of the lowest and of the highest school level.

In conclusion, the composition and interpretation of latent variables B22 through B29 is similar for the four teacher groups to a degree that permits them to be treated as equivalent dependent variables from one group to another. It can, however, already be seen at this stage that not a very high percentage of the variance of some of the manifest

variables is explained by the latent variables, especially in the group of comprehensive school teachers of grades 4-6. This implies that the path models (or the independent variables of the study) are not very effective in explaining, for instance, psychological well-being in family life and leisure.

The examination of the intercorrelations of latent variables B22 through B29 (Tables A4.9. to A4.12., Appendix 4) reveals that (a) the general pattern of correlations seems to be very similar for all four groups, and (b) many highly positive correlations of the order of .50 to .60 together with nonsignificant zero-correlations are contained by the matrices. Thus, some rather compact clusters that are independent of each other are formed by the psychological well-being and health variables of the study.

Two factors for group COMPREH 1-3 and three factors in the three other groups show Eigenvalues of 1.00 or higher. Four factors are needed to explain 92.3 to 97.5 per cent of the common variance. The varimax rotations of the four factor solutions are given in Table 14.

(I) Factors 1, 1, 1, and 2 (for groups COMPREH 1-3, COMPREH 4-6, COMPREH 7-9, and UPPER SEC, respectively) explain practically all the common variance of variables B28 PSYSOM and B29 HEALTH. In addition, B26 PSYHOME is strongly related to this factor as well as - to a lesser degree which seems to decrease toward the upper school levels - B23 PSYWORK. A general psychic and somatic health variation together with its reflections upon well-being in work might be represented by this factor. If this is really the case, this representation is uniform in all groups.

(II) Factors 2, 2, 2, and 1 are based on the variables B22 WKFACIL and B23 PSYWORK. Strong secondary loadings on this factor (in group UPPER SEC a higher one even than that on factor I) are shown by B26 PSYHOME, and minor ones by B24 JOBSATSF. Psychological well-being in work is measured by this factor perhaps together with its reflections on family life and leisure. The loadings of B26, however, are possibly due to a technical artifact caused by the method of measuring feelings of social esteem, self-esteem and meaningfulness in different sectors of life.

(III) Factors 3, 4, 3, and 3 represent mainly the variance that B25 PROFACTV and B27 LEISACTV have in common - free time activity in general. The loading of B27, however, is rather weak in group COMPREH 4-6, i.e. the group where the meaning of this variable differs from that in the other groups. One weak loading shown by group COMPREH 7-9 suggests that difficulties in the daily work are to a small extent associated with general passiveness in free time.

(IV) Factors 4, 3, 4, and 4 are weak but - because of their similarity - hardly random factors. The primary loadings of B24 JOBSATSF are on these factors together with weak loadings of B23 PSYWORK and B25 PROFACTV.

Table 14. Varimax rotated principal factors of psychological well-being and health variables for teachers by main teaching level. Four factor solutions. Decimal points omitted.

Variable	Group/Factor																Group/Communality			
	1/1	2/1	3/1	4/2	1/2	2/2	3/2	4/1	1/3	2/4	3/3	4/3	1/4	2/3	3/4	4/4	1/C	2/C	3/C	4/C
B22 WKFACIL	16	00	11	16	63	54	54	60	07	08	23	10	17	12	11	11	46	32	37	40
B23 PSYWORK	40	35	32	22	63	70	73	70	06	02	04	05	09	20	42	33	57	65	81	65
B24 JOBSATSF	10	07	10	10	21	19	21	30	05	00	05	05	38	52	52	63	22	32	32	50
B25 PROFACTV	-04	-09	-03	-09	02	06	05	-05	54	48	66	63	34	22	15	20	41	29	47	45
B26 PSYHOME	60	55	62	50	39	51	53	58	10	08	00	08	15	07	22	13	54	58	71	61
B27 LEISACTV	03	01	-02	12	08	02	14	27	67	28	64	64	-07	-07	-08	-18	46	08	43	53
B28 PSYSOM	86	74	74	72	18	03	14	25	-06	-07	03	-03	20	11	04	12	81	56	57	60
B29 HEALTH	63	55	63	72	17	13	10	13	-01	-03	-08	01	01	-03	11	01	42	32	43	54
Eigenvalues	169	129	144	139	106	110	120	143	77	33	91	83	36	40	55	62	389	312	411	428

Groups: 1 = COMPREH 1-3, N = 463
2 = COMPREH 4-6, N = 576
3 = COMPREH 7-9, N = 646
4 = UPPER SEC, N = 233

In conclusion, besides being very similar in content the dependent variables turn out to be very similar in their factor structure in the four research groups. Their common variance is explained by general psychic-somatic health, psychological well-being in work, free time activity and by motivational job satisfaction. The percentages of the total variance explained by these four factors are 51.4 and 53.5 for the two groups of secondary school teachers, but somewhat lower for the lower level groups, especially COMPREH 4-6 (39 %). This latter group, showing a slight deviation from the uniform pattern, is the only one with a majority of males. This could imply a possibility that the structure of psychological well-being and health is different for the two sexes, or, in the context of this study, that the effects of the independent variables are different for different sexes.

6.2.4.2 Common effects upon well-being and health

The direct and total path coefficients of all background, work, and psycho-social working situation variables upon the well-being and health variables for the four teaching level groups are reproduced (from Tables A4.1. to A4.4. in Appendix 4) in Table 15. In order to get an overall picture of the general pattern of the effects upon the dependent variables, the significant paths shown by three or four teaching level groups in common are illustrated in Figure 6.

No direct effects common to all groups upon a teacher's psychological well-being and health are shown by the local environment variables B1 COMMUNTY, B2 REFOYEAR and B3 SCHOSIZE. Some indirect effects of B1 and B3 are implied through their effects upon the psycho-social working situation and work. According to Table 15, however, only the indirect effects of B1 COMMUNTY show any consistent pattern: high urbanness of the local environment tends to be associated with a low level of well-being in work and with a poor state of health.

Two direct effects of B4 SEX and one of B5 AGE are common for all four groups and four direct effects of these personal background variables are common for three groups. Females, more often than males, express difficulties in their work (B22 WKFACIL) but are more satisfied with their occupation in terms of being less willing to find some other work (B24 JOBSATSF). There are two stronger effects of sex upon B27 LEISACTV and B29 HEALTH: both of these show better well-being among males than among females.

All the direct effects of B5 AGE are upon the criteria of general well-being and health, i.e. no effects upon well-being in work are uniformly shown by this variable. Understandably enough, old age is associated with a poorer state of health (B29) and in three groups with a greater number of somatic (stress) symptoms (B28). (As far as this effect is concerned, these symptoms are obviously not interpretable as stress symptoms.) In addition, older teachers tend to exhibit higher non-occupational free time activity than younger teachers.

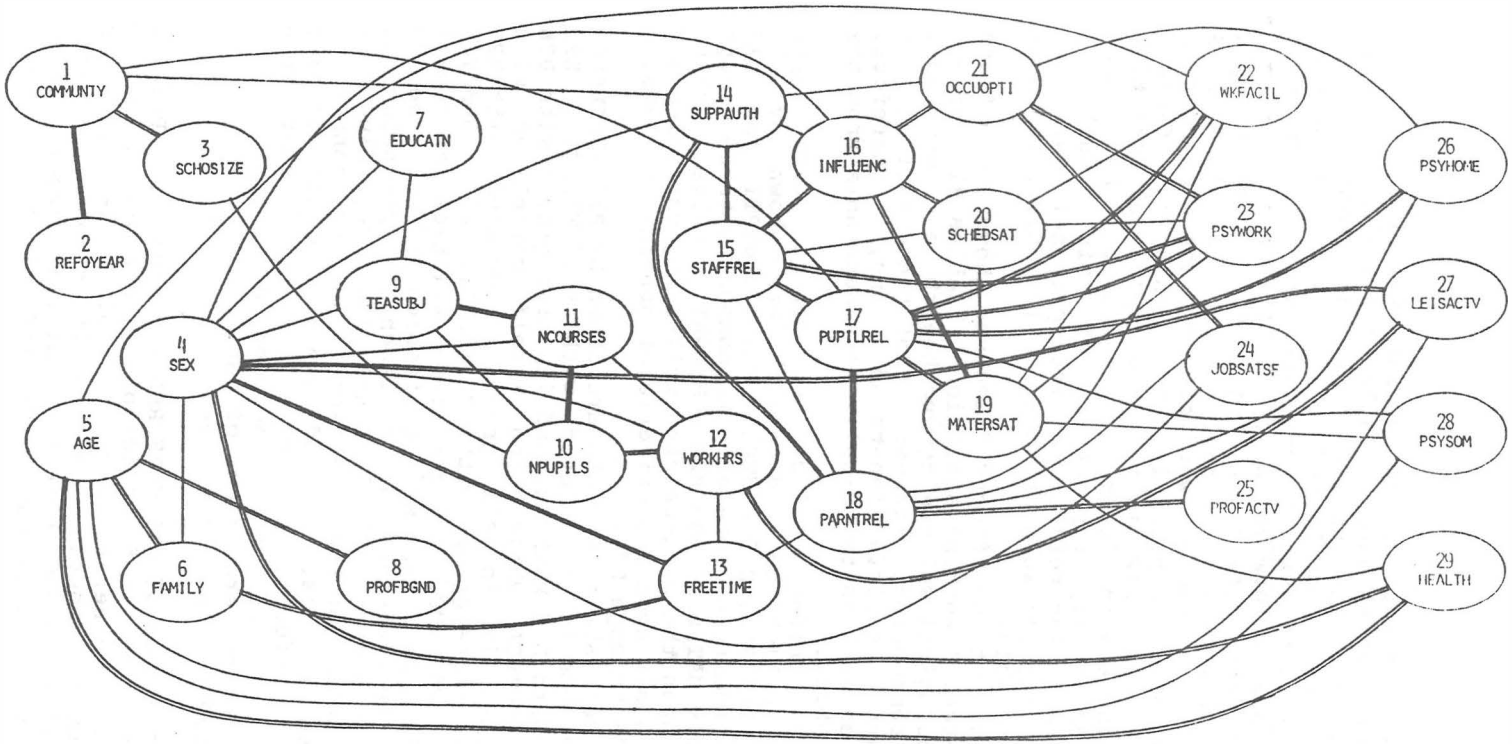

FIGURE 6. Path diagram illustrating common relations between local environment, personal background situation, work, psychosocial working situation, and psychological well-being and health.

LEGEND: Single line = path significant in three of the four teaching level groups,
Double line = path significant in all four teaching level groups.

The indirect effects of sex and age as well as those of the other personal background variables are minimal. This is explained by the fact that they do not show many effects upon variables which could mediate their effects further. Most of the effects of sex are upon work variables, which in turn show only one uniform effect upon well-being.

The only uniform effect of the work variables upon psychological well-being and health is that of B12 WORKHRS upon B27 LEISACTV. Teachers who work more (or who have a higher number of class hours in proportion to out-of-class work at home) tend to show higher non-occupational free time activity than those with fewer class hours. No causal relation is apparently represented by this result. A correlative association reflecting interpersonal variation in general activity and work orientation (or only a response set) is more probable.

As compared with the effects discussed above the effects of the psycho-social working situation variables B14 through B21 upon psychological well-being and health are numerous. It must be remembered, however, that these variables in themselves are satisfaction-toned and, therefore, conceptually as well as technically less separable from the dependent variables.

Most of the uniform effects of direct type upon psychological well-being and health are shown by the variables B17 PUPILREL, B18 PRNTREL, B21 OCCUOPTI and B15 STAFFREL. In addition, some effects common to three groups are shown by B19 MATERSAT and B20 SCHEDSAT. Twelve of these effects are upon the work-related well-being variables B22 through B25 and six upon the criteria of general well-being and health (B26 through B29).

The most consistent effects are shown by B17 PUPILREL, which in all groups is associated with B22 WKFACIL, B23 PSYWORK and with B26 PSYHOME, and in three groups with B28 PSYSOM. B18 PRNTREL, while being itself correlated with pupil relations, is in all groups associated with B25 PROFACTV and in three groups with B22 WKFACIL, B24 JOBSATSF and with B26 PSYHOME. These two variables of social relations implied by a teacher´s profession and work seem to be the major determatants of a teacher´s psychological well-being at work. Final conclusions regarding the direction and nature of these ´effects´, however, cannot be based on these results. In addition to the controversial direction of the effects, it must be remembered that some original questionnaire items included in the variables in B22 and B23 refer to perceptions of pupils´ behaviour, and one item in B25 concerns free time contacts with pupils and their parents.

The uniform effect of B15 STAFFREL is upon B23 PSYWORK implying that good staff relations - in addition to good pupil relations - generate psychological well- being in individual staff members. This result is comparable with those discussed above and subject to similar reservations, too: the social esteem variable included in B23 refers to ´others in the work place´.

Table 15. Predictability of psychological well-being and health variables by local environment, personal background situation, work, and psycho-social working situation: Direct (Beta) and total (T) path coefficients and proportions of variance explained, for teachers by main teaching level. Decimal points omitted.

Predictor	Group	Dependent variable B22 WKFACIL Beta	T	B23 PSYWORK Beta	T	B24 JOBSATSF Beta	T	B25 PROFACTV Beta	T	B26 PSYHOME Beta	T	B27 LEISACTV Beta	T	B28 PSYSOM Beta	T	B29 HEALTH Beta	T
B1 COMMUNTY	COMPR1-3	..	-17	..	-20	..	-07	..	00	..	05	..	02	..	-09	..	-10
	COMPR4-6	..	-13	..	-16	..	-02	..	-06	..	-06	..	-06	..	-09	-15	-25
	COMPR7-9	..	-04	..	-02	..	-02	..	03	..	-06	..	-03	..	-07	..	-08
	UPPERSEC	..	-05	..	-04	13*	00	..	05	..	-06	..	-03	..	-04	..	-09
B2 REFOYEAR	COMPR1-3	..	00	..	00	-09*	-09	..	00	..	00	..	..	..	00	..	..
	COMPR4-6	..	-04	..	-04	..	02	..	-01	..	-03	..	01	10	07	..	-02
	COMPR7-9	..	-01	..	01	..	..	..	02	..	00	..	01	..	00	..	-01
	UPPERSEC	..	01	..	-02	..	-03	..	-01	..	-03	..	03	..	-06	..	-11
B3 SCHOSIZE	COMPR1-3	..	-03	..	-09	..	-04	..	02	22	16	..	01	..	-03	..	-04
	COMPR4-6	09	06	11	04	..	00	..	-05	15	10	..	-04	..	-06	..	-02
	COMPR7-9	..	00	08	06	..	00	..	-02	..	-01	-10	-14	..	02	..	..
	UPPERSEC	..	05	10*	13	..	03	17	18	..	04	..	00	..	02	..	00
B4 SEX	COMPR1-3	-08	-07	-08*	-13	09	09	-10	-13	..	-04	-19	-18	-10	-11	-13	-14
	COMPR4-6	-14	-11	..	-04	25	22	-18	-17	-09	-09	-26	-25	-09*	-12	-11	-11
	COMPR7-9	-17	-20	..	-08	..	01	..	-08	..	-04	-16	-22	-15	-17	-14	-17
	UPPERSEC	..	-07	..	-06	23	14	..	-06	-12*	-18	-29	-37	..	-08	-20	-20
B5 AGE	COMPR1-3	..	11	..	06	..	03	..	10	-11	-06	16	22	-16	-15	-30	-25
	COMPR4-6	12	16	..	12	..	-01	..	01	..	01	21	20	-18	-12	-15	-10
	COMPR7-9	10	12	..	..	..	-02	..	05	..	00	13	15	-18	-17	-21	-20
	UPPERSEC	11*	14	15	12	..	-02	..	-01	..	-02	..	02	..	-06	-18	-22

(continues)

Table 15. (continued)

Predictor	Group	Dependent variable B22 WKFACIL Beta	T	B23 PSYWORK Beta	T	B24 JOBSATSF Beta	T	B25 PROFACTV Beta	T	B26 PSYHOME Beta	T	B27 LEISACTV Beta	T	B28 PSYSOM Beta	T	B29 HEALTH Beta	T
B6 FAMILY	COMPR1-3	..	00	10	05	10	10	..	-01	10*	05	-08*	-09	12	13	..	00
	COMPR4-6	..	00	..	-03	..	00	..	00	..	00	..	05	..	-04	..	-01
	COMPR7-9	..	-02	..	-01	..	05	..	-05	..	00	..	-03	..	00	..	00
	UPPERSEC	..	-12	..	-10	..	-05	..	01	17	11	..	02	..	-02	..	-05
B7 EDUCATN	COMPR1-3	..	-04	..	-03	-10	-10	09	10	..	-02	..	01	..	-01	..	-01
	COMPR4-6	..	06	..	-02	-11	-10	..	-01	..	02	..	-02	..	-02	..	00
	COMPR7-9	..	03	..	04	..	03	..	-06	..	02	..	-02	..	02	..	01
	UPPERSEC	..	05	..	03	..	03	12*	13	10*	12	14	15	..	-02	..	03
B8 PROFBGND	COMPR1-3	..	-01	..	-03	..	01	..	01	..	-01	..	00	..	-01	..	00
	CPMPR4-6	-09*	-10	..	-03	-10	-10	..	03	-13	-14	..	02	..	-04	..	-03
	COMPR7-9	..	04	..	03	..	01	..	05	..	-01	..	-01	..	-01	..	-01
	UPPERSEC	..	..	..	..	..	..	..	..	..	..	13	13	-12*	-12	-14	-14
B9 TEASUBJ	COMPR1-3	-11	-05	-08*	-07	..	00	..	02	..	01	..	01	..	-06	..	01
	COMPR4-6	-14	-12	..	01	..	04	..	04	..	00	..	03	09	07	..	-01
	COMPR7-9	..	03	..	03	..	02	-22	-18	..	01	..	-02	..	02	..	00
	UPPERSEC	..	-05	..	00	..	03	..	06	..	01	..	04	17	22	..	00
B10 NPUPILS	COMPR1-3	..	-02	..	-02	..	00	..	02	..	00	..	01	..	02	..	00
	COMPR4-6	..	-04	..	-04	..	00	..	-03	..	-01	..	02	..	00	..	00
	COMPR7-9	..	02	..	-01	..	02	10	13	-12	-11	..	01	-09	-08	-14	-13
	UPPERSEC	..	-01	..	-02	..	06	..	01	12*	10	..	05	..	06	..	..
B11 NCOURSES	COMPR1-3	..	00	..	-04	..	00	..	03	..	-02	..	02	-10	-11	..	00
	COMPR4-6	..	01	..	-02	..	04	..	05	..	-01	..	04	..	-04	..	-03
	COMPR7-9	..	-01	12	09	..	-03	..	03	..	-01	..	03	..	-01	..	-02
	UPPERSEC	..	-02	..	-03	..	03	..	02	..	-03	..	03	16	13	..	..

(continues)

Table 15. (continued)

Predictor	Group	Dependent variable B22 WKFACIL Beta	T	B23 PSYWORK Beta	T	B24 JOBSATSF Beta	T	B25 PROFACTV Beta	T	B26 PSYHOME Beta	T	B27 LEISACTV Beta	T	B28 PSYSOM Beta	T	B29 HEALTH Beta	T
B12 WORKHRS	COMPR1-3	..	-02	-11	-15	..	00	17	20	..	-03	11	12	..	-02	..	-02
	COMPR4-6	..	01	..	-02	09	10	..	03	..	-02	09	11	..	-03	..	-01
	COMPR7-9	..	-04	..	-05	..	00	..	-03	..	-04	-11	-13	..	-03	..	-03
	UPPERSEC	..	..	..	-03	19	17	..	..	..	-01	13	13	..	..	..	..
B13 FREETIME	COMPR1-3	..	-02	16	16	..	-03	..	-05	13	10	..	-02	..	..	..	..
	COMPR4-6	..	01	08	11	..	01	..	-01	..	02	-17	-17	09	12	..	03
	COMPR7-9	..	03	07	13	-11	-06	..	00	..	05	..	00	..	04	..	05
	UPPERSEC	19	21	13	10	..	02	..	-05	..	-01	..	-03	..	01	..	01
B14 SUPPAUTH	COMPR1-3	..	05	..	05	..	07	14	21	..	07	..	03	..	04	..	03
	COMPR4-6	09	16	..	13	..	06	..	03	-10	00	..	..	..	05	..	06
	COMPR7-9	11	12	..	17	..	11	20	29	..	13	11	17	..	05	..	04
	UPPERSEC	11*	15	..	16	..	12	..	14	..	11	..	10	..	03	..	04
B15 STAFFREL	COMPR1-3	..	11	18	23	..	07	..	06	..	09	..	03	..	06	..	05
	COMPR4-6	..	08	16	25	..	02	-12	-08	14	21	..	..	..	05	14	15
	COMPR7-9	..	10	22	34	12	20	..	04	14	22	..	01	..	06	..	08
	UPPERSEC	..	13	18	32	..	15	..	05	..	15	..	06	..	09	19	20
B16 INFLUENC	COMPR1-3	..	12	..	10	..	10	..	03	..	12	..	01	..	14	..	11
	COMPR4-6	..	07	16	28	..	08	..	00	17	22	..	..	10	22	..	09
	COMPR7-9	..	10	..	15	..	08	..	01	..	13	..	-01	..	13	..	13
	UPPERSEC	..	10	-13	00	19	24	..	-05	..	09	..	..	..	07	..	05
B17 PUPILREL	COMPR1-3	30	36	21	23	..	08	..	08	15	22	..	04	11	15	12	15
	COMPR4-6	38	41	15	20	..	04	..	04	18	19	..	..	..	03	..	02
	COMPR7-9	21	26	25	29	16	18	..	06	17	21	-11	-06	09	12	10	14
	UPPERSEC	38	40	20	29	18	24	..	06	27	31	..	04	17	17	..	02

(continues)

Table 15. (continued)

Predictor	Group	Dependent variable B22 WKFACIL Beta	T	B23 PSYWORK Beta	T	B24 JOBSATSF Beta	T	B25 PROFACTV Beta	T	B26 PSYHOME Beta	T	B27 LEISACTV Beta	T	B28 PSYSOM Beta	T	B29 HEALTH Beta	T
B18 PRNTREL	COMPR1-3	10	11	..	..	21	21	27	27	17	17	13	13	..	..	..	..
	COMPR4-6	10	10	06*	06	11	11	24	24	..	..	..	..	..	..	..	..
	COMPR7-9	10	10	..	01	..	02	21	21	..	01	19	19	..	..	..	..
	UPPERSEC	..	-02	23	22	13*	13	31	31	15	15	20	20	..	00	..	-02
B19 MATERSAT	COMPR1-3	17	20	17	18	11	12	..	..	17	19	..	..	24	26	17	19
	COMPR4-6	..	02	10	12	10	11	..	..	..	00	..	..	21	22	16	16
	COMPR7-9	16	16	14	16	..	02	..	..	19	19	..	..	27	27	21	24
	UPPERSEC	14	16	..	07	..	04	..	-02	..	04	..	..	..	02	12*	12
B20 SCHEDSAT	COMPR1-3	12	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	COMPR4-6	11	11	12	15	..	03	..	..	..	03	..	..	..	02	..	02
	COMPR7-9	..	..	08	08	08	08	..	..	..	..	..	..	..	..	09	09
	UPPERSEC	14	14	20	20	..	..	-15	-15	18	18	..	..	22	22	..	..
B21 OCCUOPTI	COMPR1-3	11	11	13	13	12	12	..	..	15	15	..	..	18	18	17	17
	COMPR4-6	..	..	16	16	19	19	..	..	16	16	..	..	13	13	13	13
	COMPR7-9	..	..	14	14	18	18	..	..	13	13	..	..	..	..	..	..
	UPPERSEC	..	..	28	28	22	22	..	..	11*	11	..	..	..	..	..	..
Multiple R-square	COMPR1-3	243		274		135		172		179		107		190		175	
	COMPR4-6	239		275		142		091		143		141		159		143	
	COMPR7-9	201		292		118		163		165		162		144		160	
	UPPERSEC	322		389		235		143		258		227		164		180	

All paths removed from the models during model reduction are indicated by two dots /../.
* indicates nonsignificant paths retained in the models.

The two effects of B21 OCCUOPTI shown by all groups in common are upon B23 PSYWORK and B24 JOBSATSF. In addition, a positive effect of occupational optimism on psychological well-being in family life and leisure (B26 PSYHOME) is shown by three groups (i.e. by all but the smallest group UPPER SEC where Beta = .11 fails to reach statistical significance). It seems that a mechanism different to that reflected by the social relations effects is reflected by these results. The effects of more general aspects of satisfaction and uncertainties within the profession are concerned here.

As to the weak effects of B20 SCHEDSAT shown by three groups upon B22 WKFACIL and B23 PSYWORK, these might be interpreted as simple reflections of a general dissatisfaction with one´s working conditions. According to a causal interpretation, these results imply that some disturbances in psychological well-being in work are caused by the inconveniences of a teacher´s time-table, too.

Four single-lined effects upon well-being are shown by B19 MATERSAT, two upon the dependent variables B22 WKFACIL and B23 PSYWORK and two upon the general health variables B28 PSYSOM and B29 HEALTH. A possible interpretation of the first two effects apparently goes along the lines suggested in the case of B20 above. Some teachers seem to work under such physical working conditions and with such material prerequisites that are inclined to produce difficulties and decreased psychological well-being in their work. Interpretations of a somewhat different kind could perhaps be applied to the two latter (and stronger) effects: the variation of teachers´ physio-chemical working conditions is great enough to produce somatic health problems in extreme cases, or - in any case - teachers with an impaired somatic health are suffering from deficiences in the physio-chemical working conditions.

No universal direct effects upon the dependent variables are shown by B14 SUPPAUTH and B16 INFLUENC. Examination of Table 15 reveals that the indirect effects of B14, too, are rather weak and inconsistent; some common effects upon B22 WKFACIL, B23 PSYWORK and B25 PROFACTV can be seen (mediated mainly by the staff relations - pupil relations - parent relations cluster). The weak indirect effects of B16 INFLUENC are mediated by the effects of B19, B20 and B21 (no other mediators are contained within the model).

6.2.4.3 Group differences in the effects upon well-being and health

Attempts to illustrate the effects upon the well-being and health variables for the four teaching level groups separately - by adding the new paths into Figures 2 to 5 - have resulted in Figures 7 to 10. The readability of these, however, is rather poor, especially so in the case of Figure 10 for group UPPER SEC. On the other hand, the high number and complexity of the effects is illustrated quite concretely by the Figures.

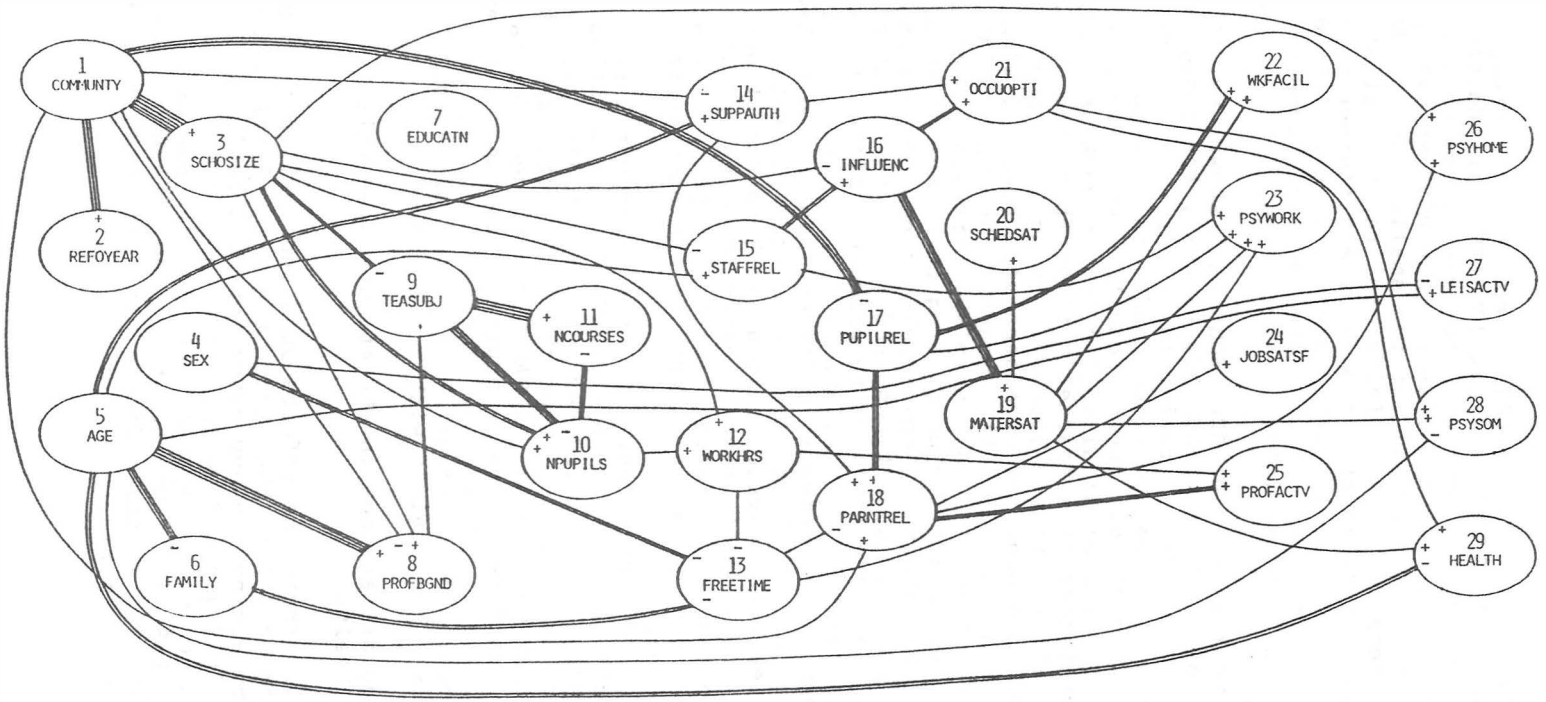

FIGURE 7. Path diagram illustrating relations between local environment, personal background situation, work, psychosocial working situation, and psychological well-being and health. Group COMPREH 1-3: Comprehensive school teachers of grades 1-3, N = 463.

LEGEND: ——— = Beta .16 to .24, ═══ = Beta .25 to .34, ═══ = Beta .35 to .44, ═══ = Beta .45 to .54, ═══ = Beta .55 to .64, ═══ = Beta .65 or over

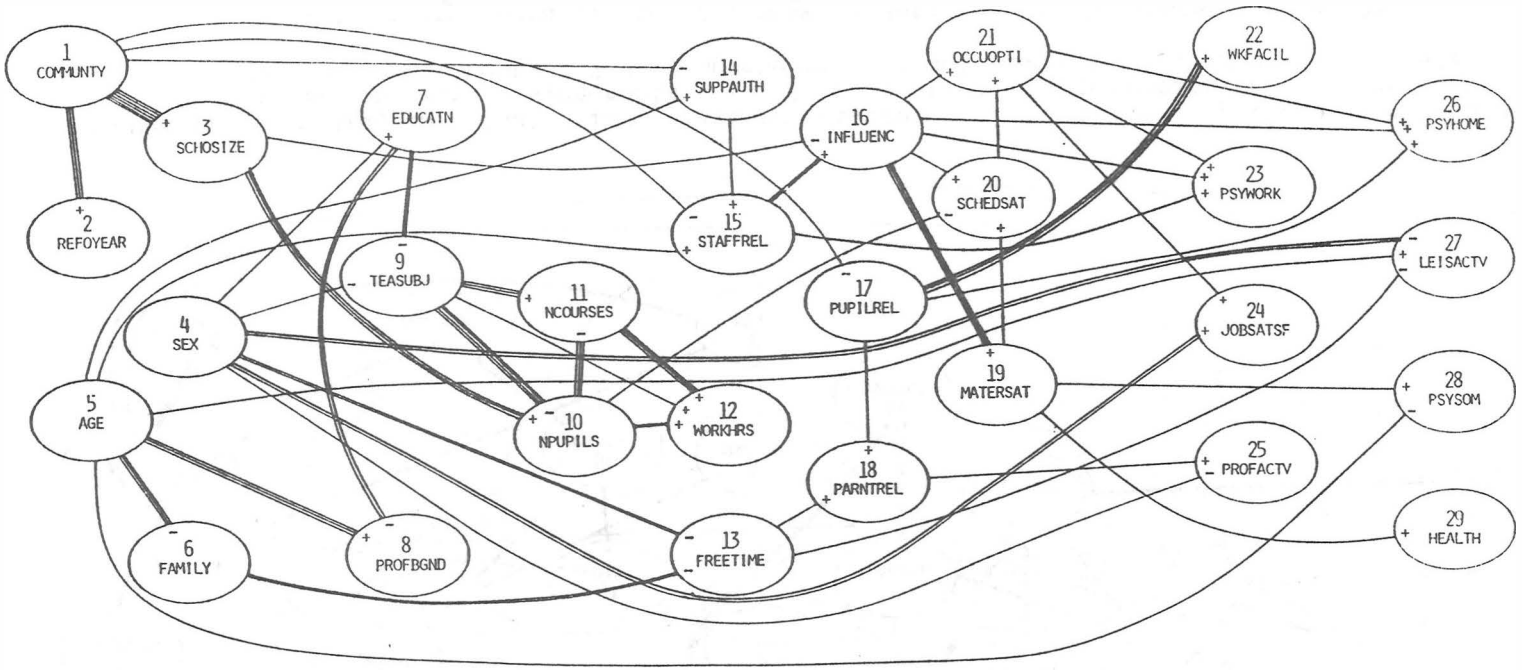

FIGURE 8. Path diagram illustrating relations between local environment, personal background situation, work, psychosocial working situation, and psychological well-being and health. Group COMPREH 4-6: Comprehensive school teachers of grades 4-6, N = 576.

LEGEND: ——— = Beta .16 to .24, ═══ = Beta .25 to .34, ═══ = Beta .35 to .44, ═══ = Beta .45 to .54, ═══ = Beta .55 to .64, ═══ = Beta .65 or over

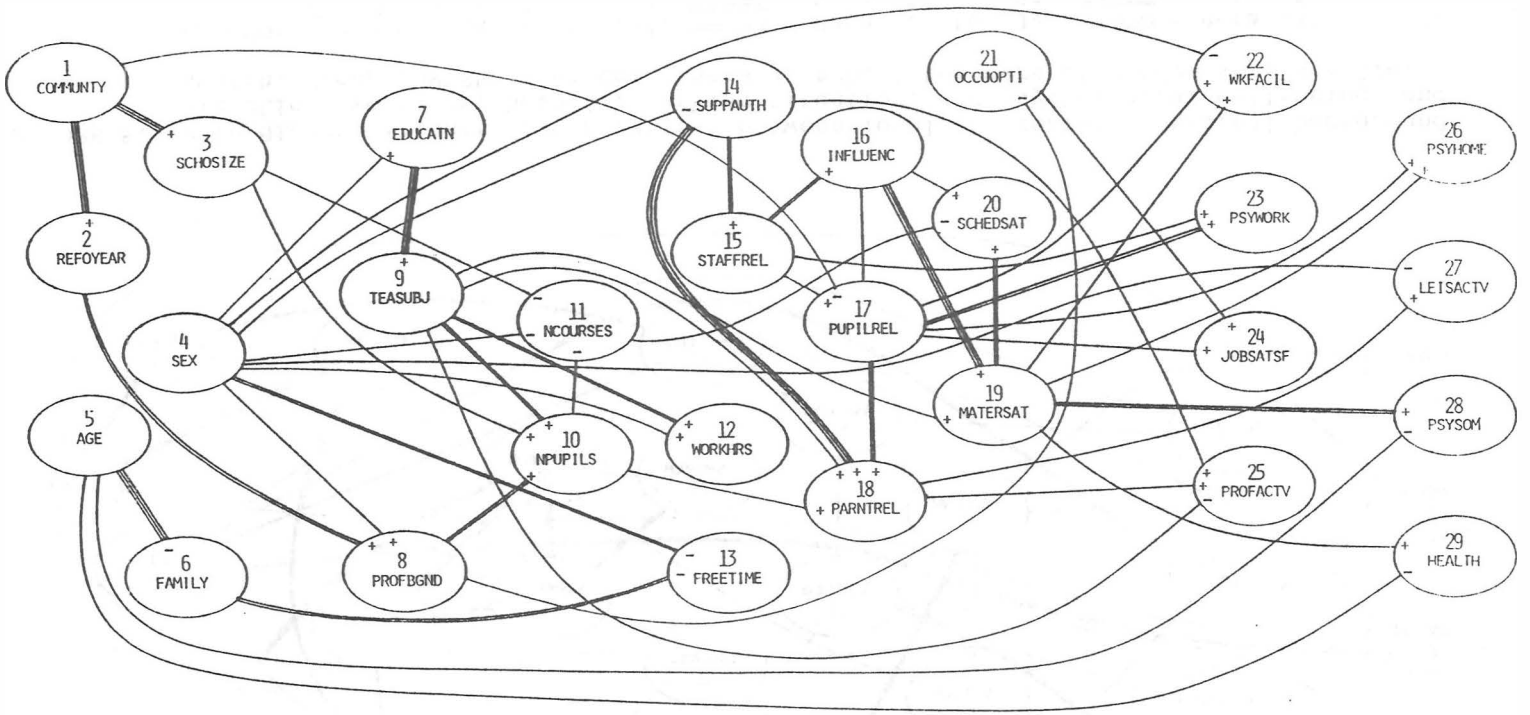

FIGURE 9. Path diagram illustrating relations between local environment, personal background situation, work, psychosocial working situation, and psychological well-being and health. Group COMPREH 7-9: Comprehensive school teachers of grades 7-9, N = 646.

LEGEND: = Beta .16 to .24, = Beta .25 to .34, = Beta .35 to .44, = Beta .45 to .54, = Beta .55 to .64, = Beta .65 or over

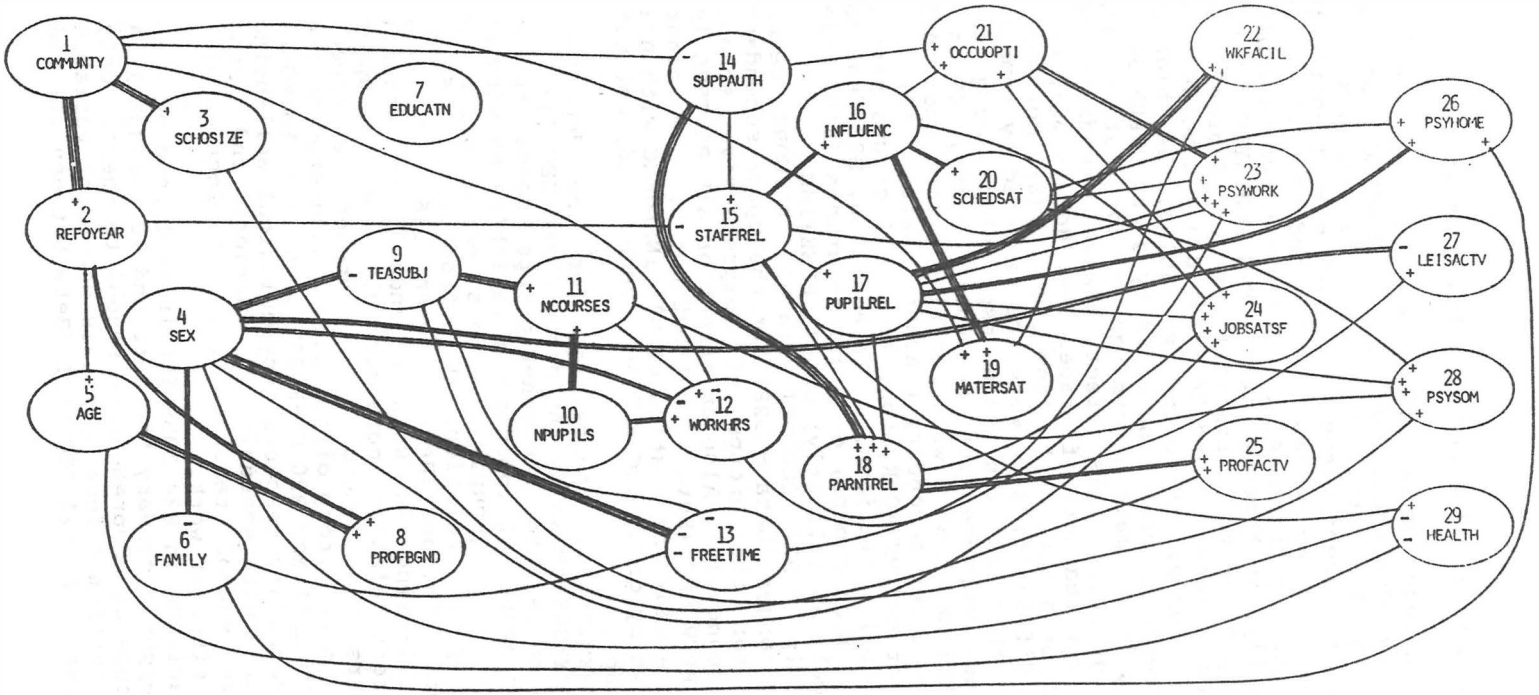

FIGURE 10. Path diagram illustrating relations between local environment, personal background situation, work, psychosocial working situation, and psychological well-being and health. Group UPPER SEC: Upper secondary school teachers, N = 233.

LEGEND: = Beta .16 to .24, = Beta .25 to .34, = Beta .35 to .44, = Beta .45 to .54, = Beta .55 to .64, = Beta .65 or over

6.2.4.3.1 Job satisfaction and well-being at work

The highest percentages of variance explained are, for all groups, shown by dependent variables B22 WKFACIL and B23 PSYWORK, i.e. by the marker variables of factors (II) interpreted as representations of psychic well-being in work. 20 to 32 % of the variance in B22 and 27 to 39 % in B23 is explained by the models. The other two variables loaded (secondarily) on these factors - B24 JOBSATSF and B26 PSYHOME - are explained to a somewhat lesser degree; the percentages vary between 12 and 24 % for B24 and between 14 and 26 for B26. For all these four variables, the highest explanation percentages are those shown by group UPPER SEC.

B17 PUPILREL is the main determinant or correlate of B22 WKFACIL for all groups. This effect, however, tends to be somewhat weaker for teachers of grades 7-9 (Beta = .21) than for the other three groups (Beta from .30 to .38). Moreover, slightly more difficulties in work are reported by females than by males; this is the case especially among the teachers of the comprehensive secondary school (Beta = -.17). B13 FREETIME shows a weak positive effect upon B22 WKFACIL among the upper secondary teachers (Beta = .19).

The variance of B23 PSYWORK, too, is in all groups partly explained by pupil relations. In addition, B23 depends uniformly (in all four groups) on staff relations (B15, Beta around .20) as well as (slightly) on B13 FREETIME.

The relationship of B21 OCCUOPTI with B23 PSYWORK seems to be somewhat stronger (Beta = .28) for the upper secondary teachers than for the groups of comprehensive school teachers (Beta around .15). Also an effect of B18 PRNTREL is shown by group UPPER SEC (Beta = .23) but not by the other groups. Finally, a weak association of B16 INFLUENC with B23 PSYWORK is shown by group COMPREH 4-6 (Beta = .16) but not by the other groups.

The higher explanation percentage for the dependent variable B23 PSYWORK shown by the group UPPER SEC (39 % as compared with 27 to 29 % for the other groups) seems to be due to a higher number of independent variables showing an effect upon B23 in this group. Besides being uniformly associated with pupil relations (Beta from .15 to .25) as well as with staff relations (Beta between .16 and .22), psychological well-being in work depends on occupational prospects and parent relations more strongly among the upper secondary teachers than among the comprehensive school teachers. One more group difference is suggested by the effects of B19 MATERSAT and B20 SCHEDSAT upon B23 PSYWORK: for the upper secondary teachers, psychological well-being in work is connected with schedule satisfaction, and among the comprehensive school teachers with satisfaction with material prerequisites of work.

24 % of the variance in B24 JOBSATSF is explained by the model for the upper secondary teachers and 12 through 14 % for the three groups of comprehensive school teachers. Only one more or less uniform effect upon this dependent variable can be seen, that of B21 OCCUOPTI (Beta between .12 and

.22). Decreased willingness to continue in teaching is connected with reduced optimism in occupational prospects. All other direct effects upon job satisfaction vary from group to group.

Weak effects of B15 STAFFREL, B16 INFLUENC and B17 PUPILREL upon job satisfaction are shown by one or both of the two upper level groups but not by the teachers of the lower level of the comprehensive school. On the other hand, good parent relations are to a small extent associated with good professional adjustment among the teachers of the lowest grades (Beta = .21).

Only one effect of the work variables B9 through B12 upon job satisfaction can be seen: that is the effect of B12 WORKHRS for group UPPER SEC (Beta = .19) and for group COMPREH 4-6 (a very weak one, Beta = .09): those with more class hours tend to show better job satisfaction. No effects, either direct or indirect, are shown by B9 TEASUBJ, B10 NPUPILS, or B11 NCOURSES in any of the groups.

As to the relations of job satisfaction with the personal background variables B4 through B8, some interesting effects of B4 SEX can be mentioned: females, as compared with males, express more willingness to continue in teaching. This holds true especially for groups COMPREH 4-6 and UPPER SEC (Beta = .25 and =.23) and to a lesser degree for the teachers of the lowest grades (Beta = .09), but is not at all the case for group COMPREH 7-9. - As an exercise we will attempt to interpret these group differences: the main reason for the better satisfaction shown by females might be the fact that teaching as a profession ranks socio-economically higher among the typically female occupations than among those typically male. In the case of group COMPREH 1-3, this general effect is partly weakened (in results, not in reality) by skewness of the sex distribution for this group (90 % females). In group COMPREH 7-9, the effects of the general status factor are counterbalanced by difficulties in the daily work (i.e. dealing with pubescent pupils in grades 7-9) experienced more often by females than by males (B22).

Practically no effects - direct or indirect - upon job satisfaction are shown by the environment and school variables B1 through B3. One non-significant Beta = .13 for group UPPER SEC suggests slightly better satisfaction among teachers in urban than in rural environments at this school level.

6.2.4.3.2 Free time activity

B25 PROFACTV, a work-related well-being criterion with fewer associations with the former three, is explained for 9 to 17 per cent of its variance by the models. The lowest percentage is that shown by group COMPREH 4-6. Besides the positive associations with parent relations (B18, Beta between .21 and .31 for the four groups), no uniform effects upon this variable are shown by any of the independent variables. Nor can any systematic differences be seen between the associations with different independent variable sections.

For teachers of the lower level of the comprehensive school (COMPREH 1-3 and 4-6), professional activity tends to be lower among females than among males (Beta = -.10 and -.18 for these two groups). In addition, weak effects of education and authority relations are shown by group COMPREH 1-3: those who are professionally more active rate school authorities more positively and have been active earlier, too, in taking extra courses in educational subjects. - For group COMPREH 4-6, a weak negative association between professional activeness and staff relations is revealed: pupil oriented professionally active teachers tend to be less satisfied with the social atmosphere of the staff room.

Three significant associations of professional activity (in addition to the association with B18 PRNTREL) are shown by the comprehensive secondary teachers: a lower degree of activity tends to be shown by language teachers as compared with teachers in practical and aesthetic subjects and/or class teachers working at this level (Beta = -.22). A larger total number of pupils/classes as well as better relations with school authorities are associated with a higher degree of professional activity (Beta = .10 and .20 for these two variables for group COMPREH 7-9).

Among the upper secondary teachers, professional activity tends to correlate positively with school size and extra studies in educational subjects, and negatively with schedule satisfaction.

As with the direct effects, most indirect effects upon professional activity, are nothing more than zeros. In addition to parent relations, a general tendency of authority relations to be associated with professional activity can be observed. Thus, a large amount of professional activity is to a small extent associated with better reliance upon work-relevant sources outside the immediate working organization.

The explained percentages of variance in B27, leisure activity not related to work, vary between 11 and 23 %; the upper secondary teachers score highest here. The strongest direct effects are shown by B4 SEX (uniformly for all groups, Beta between -.16 and -.29). A positive effect of B5 AGE is shown by the three groups of comprehensive school teachers (Beta between .13 and .21): leisure activity tends to be greater among older teachers than among younger teachers. Two more common effects are those with B12 WORKHRS (Beta .09 through .13) and with B18 PRNTREL (the significant Beta between .13 and .20 for the three groups). Good parent relations are connected with a higher degree of leisure activity. In the case of B12, a high number of class hours tends to be associated with a high degree of leisure activity. For group COMPREH 7-9, however, decreased leisure activity tends to be connected with a larger amount of out-of-class work at home (in proportion to class hours) - something that could imply a very different kind of relationship for this group. - To mention only one of the more scattered weak effects upon leisure activity, a negative effect of B13 FREETIME (Beta = -.17) is shown by group COMPREH 4-6: those with more free time for their

personal use tend to be less active users of their free time.

To sum up, not very much of the variance in either of the leisure activity variables is accounted for in any of the research groups. Apart from their dependence on sex, their weak associations with some research variables seem to be interpretable as expressions of a general activity variation among teachers. The degree of leisure activity among teachers does not seem to be notably influenced by work requirements, for instance. The only weak cues contrasting this conclusion can be seen in the results for the comprehensive secondary school teachers.

6.2.4.3.3 Personal well-being and health

The intermediate role of B26 PSYHOME implies that it belongs to the general well-being and health variables and correlates with psychological well-being in work. Accordingly, some of its connections with the independent variables are similar to those shown by B23 PSYWORK.

The proportion of variance explained in B26 PSYHOME is somewhat higher for the upper secondary teachers (26 %) than for the comprehensive school groups (14 through 18 %). As with B23 PSYWORK, B26 is, in all groups, associated with pupil relations (Beta between .15 and .27) and with occupational optimism (Beta between .11 and .16). Further, some weak positive associations with most of the other psycho-social working situation variables (staff relations, influence, parent relations, material working conditions, and schedule) are shown by one or two of the four groups. No systematic group differences, however, seem to be revealed by these effects.

Practically none of the associations of B26 PSYHOME with the work variables B9 through B12 deserve mentioning. Similarly, the effects of the personal background variables as well as those of the local environment and school are rare and weak. The two strongest effects among these are as follows: for the teachers of the primary level, school size tends to correlate positively with well-being outside work (Beta = .22 and = .15 for groups COMPREH 1,3 and 4-6, respectively). Among the upper secondary teachers, better well-being is reported by the teachers with young children as compared with single persons and/or persons without young children (Beta = .17).

The percentages of the variance explained in B28 PSYSOM and B29 HEALTH vary between 14 and 19 % for both of these criteria of somatic health and health behaviour. In addition, most of their associations with the independent variables are quite similar, i.e. it seems that it is the variance shown by these variables in common that is explained by the model.

As already mentioned earlier, the health variables rather uniformly depend (in all groups) upon B4 SEX and B5 AGE. These associations correspond to those generally revealed by Finnish studies on samples of people of working age. In other words, the results attained here are not unique or

restricted to the teaching profession. The effects upon B29 HEALTH are somewhat stronger than those upon somatic complaints (rather more probably with a psychic background) measured by B28. In addition, the latter effects are shown only by comprehensive school teachers, not by upper secondary teachers.

A third universal correlative of the health criteria is presented by B19 MATERSAT, satisfaction with material and physical working conditions. These effects, too, are shown more clearly by the comprehensive school teachers than by the upper secondary teachers. -Two interpretations of a less psychological nature for these effects might be that some shortcomings in working conditions are in extreme cases serious enough to produce somatic health problems, and/or that teachers with impaired health, more than the healthy ones, are suffering from deficiences in working conditions.

As with the case of criterion variables B23 PSYWORK and B26 PSYHOME, an 'effect' of B20 SCHEDSAT upon B28 PSYSOM (Beta = .22) is shown by the group UPPER SEC but not by the groups of comprehensive school teachers.

Most group-specific effects upon health variables are very weak. They seem to represent some very marginal associations shown more or less randomly by one group or another; hardly any differential patterns in health determination are implied. -Some direct as well as indirect associations of staff relations, influence and pupil relations with one or both of the health criteria can be seen. For groups COMPREH 1-3 and COMPREH 4-6, a weak positive association of health with optimism in relation to occupational prospects is revealed. For upper secondary teachers, teaching mathematical subjects (as compared to languages) as well as a large number of pupils/classes taught is associated with better health as measured by B28 PSYSOM.

7 DISCUSSION AND CONCLUSIONS

7.1 Findings

7.1.1 Descriptive results and teaching level differences

7.1.1.1 The level of well-being

As regards the level of well-being, satisfaction and health of Finnish teachers, the conclusions vary as a function of the criteria used. This variation seems, however, to show some degree of regularity: the impairments of well-being are least marked on the somatic, psychosomatic and, perhaps, also psychological levels while the criteria connected with interpersonal and sociocultural phenomena indicate a lower level of well-being.

In accordance with Finnish as well as international statistics for mortality and sickness absences, the results of this study also suggest that the teaching profession belongs to those with the lowest rates of severe health disturbances. Similarly, it seems that the overall job or occupational satisfaction is rather good (in terms of not regretting one's own occupational choice or intending to leave the occupation).

A portion of the results, however, suggest that some 20 to 30 per cent of teachers may live under psychosomatically harmful stress. This seems to be implied by the proportion of those who are tired out after a work day, worry about their work to an extent which disturbs their leisure time or suffer from severe aches (especially headache) and some other psychosomatic stress symptoms. These specific symptoms are reported by teachers more frequently than by most other occupational groups studied in Finland. The frequencies of many other symptoms - especially of the psychological ones - as well as the total number of psychosomatic symptoms do not, however, indicate a degree of acute stress that is higher than in other occupational groups. In common with the results of Bentz et al. (1971) on a sample of American teachers, the present results do not show any extremely high rates of anxiety or psychological disturbances among Finnish teachers.

In other words, some signs of relatively high acute stress are combined with a low rate of severe health problems in the occupation under study. This combination might be partly explained by the comparatively good possibilities for annual recovery from stress in the profession: despite the fact that many teachers are suffering from severe stress symptoms at the end of the school year (the time of data collection for this study), they usually recover during the vacations to a degree which prevents the development of more severe pathological end-states. This hypothesis remains to be tested by longitudinal studies covering the whole school year so that

patterns of accumulation of and recovery from stress can be analysed. In order to avoid the shortcomings of the subjective self-reports some objective indicators of stress should be used in these follow-up measurements (as is actually done by Sten-Olof Brenner in a teacher study ongoing at the Laboratory for Clinical Stress Research in Stockholm; cf. also the study of Frankenhaeuser et al. (1978) on pupils' examination stress and that by Daleva & Hadjiolova (1978) on teachers.)

On the other hand, it must be remembered that occupational differences in health, sickness absences, morbidity or mortality rates are by no means explained by differences in the psychosocial stressfulness of work alone. Many other factors (eg. physico-chemical work hazards, accidents and various aspects of the way of life) may contribute to the differences in the general state of health. Consequently, the results can not be interpreted as proving that stress does not contribute to severe health impairments among teachers.

Although a majority of teachers describe their immediate interaction with pupils and colleagues in rather positive terms, some 30 to 40 per cent of the subjects are more or less dissatisfied with the amount of help and support they receive from their pupils, colleagues and principals. About 20 per cent say that the pupils are unmotivated or restless, and about 10 per cent report that they have significant difficulties in carrying out their instructional tasks or social upbringing of the pupils.

It remains unclear how common and serious are the stressors or dissatisfactions and personal failures implied by these results on the interpersonal relations, especially on those involving the pupils. Some degree of defensiveness can also be assumed to be contained by the self-reports: about a half of the subjects say that their own education for social education and pupil treatment tasks was inadequate, while only 10 % admit that these tasks are difficult. In addition, somewhat less satisfying interpersonal relations within the work community are reported by the subjects of this study than by teachers in other Nordic countries.

As to the more remote social and sociocultural relations (relationships with parents, school authorities and public opinion), a clearly negative overall atmosphere seems to be reflected by the results. In this respect, the Finnish situation is also clearly worse than that in the Scandinavian countries. For instance, about three quarters of the subjects report dissatisfaction with the amount of help and support they receive from parents, while the corresponding proportion is only one quarter in Sweden. Even higher proportions - up to 95 per cent - express dissatisfaction with the help and support from communal, provincial and central school authorities, from the mass media and public opinion as well as also from the teachers' own organizations.

When relying on the explicit formulation of the

help-and-support questions, one concludes that the Finnish teachers to a great degree lack sociocultural adaptive resources. Many of them feel that they have to face the work problems and stressors alone. On the other hand, these feelings might be interpreted as indicating one type of perceived conflict (stressors) as well as a general atmosphere of sociocultural distrust and alienation.

A rather concrete (and more or less realistic) societal source of stress is referred to by the great proportion of teachers who anticipate a worsening rate of employment: the age groups which will enter school in the coming years were getting smaller at the time of data collection. Another type of sociocultural phenomenon seems to be involved in that a high proportion of teachers believe that almost everything else is also getting worse concerning the profession: discipline problems and work strain, income level and social status, professional freedom, and public relations. Besides pessimism, helplessness or hopelessness as mental states, these results can be seen as an expression of anticipated stress as well as being expressions which accuse the culture, society, politicians and authorities of not being able or willing to improve the quality of life in schools. In brief, various aspects of alienation as a form of disturbance in the sociocultural relations of the occupation seem to be reflected by the high degree of pessimism among teachers.

The present study does not contain relevant information for evaluating why the interpersonal and sociocultural relations of Finnish teachers are as unatisfactory as suggested by the results. On the other hand, no comparable data on other occupational groups in Finland are available and, consequently, one does not know whether the situation of teachers differs from what is ´normal´ in our culture. Two guesses can, perhaps, be presented at this point:

First, the results of Allardt (1975) seem to suggest that Finns report somewhat less satisfaction with their interpersonal relationships than do people in the other Nordic countries. It remains unclear to what degree these differences are only stylistic differences in the languages or to what degree actual differences in the ways of interpersonal living are involved. On the other hand, the results of Biddle (1970) on four English speaking cultures show the greatest intercultural differences especially in teacher-parent relations; it seems that these relations are - for some cultural reasons - less satisfying in Finland and in the United Kingdom than in many other countries.

Second, the less satisfying societal relationships of the Finnish teachers might be accounted for by the relative recency of the Finnish school reform (the transition to the comprehensive school system in the years 1972 to 1977). After a rather similar reform in Sweden about ten years earlier, Husen (1968) described the attitudes of Swedish teachers toward their society, school authorities and politicians as being extremely distrustful and negative. Since then, enough time has elapsed in Sweden for the

atmosphere to have settled down, while the practical and attitudinal problems connected with the reform were still quite acute in Finland at the time of data collection. If this explanation is correct, the Finnish situation would also be better when assessed now or some years later. The hypothesis of a situation specific to this country is indirectly supported also by a study on Swedish speaking teachers in Finland (conducted at the same time; Hakonen et al., 1981): The results are very similar to this study and both of these differ in similar fashion from the Swedish results.

7.1.1.2 Teaching level differences

Many considerable and partly self-evident differences in personal background as well as in the work organizations and work were revealed by the comparisons of teachers of different school levels. The main differences follow the division between the lower level teachers (grades 1-6 of the comprehensive school) and teachers of the upper level and of the upper secondary school. Besides the composition of work (class teachers teaching a small number of pupils in many subjects vs. subject teachers instructing a great number of pupils in one or a few subjects) and the educational background, the teaching level groups differ, eg., in their geographical distribution and school size as well as in their sex distribution, marital status, work load and time budgets.

In effect, the multiplicity of the teaching level differences in the background and work variables suggests that sociologically different sub-populations within the profession are formed by the groups. Accordingly, their differences in sociocultural and interpersonal relations, well-being and health represent epidemiological differences which, as such, are very difficult to explain causally by referring to any single background or work variable which differentiates between the groups (cf. Kasl, 1978).

Moderate signs of regularity can be seen in the latter differences. In general, the well-being of lower level teachers is higher than that of upper level and upper secondary teachers in variables that are related to relations with the school authorities, public opinion, pupils, pupils´ parents, and occupational future prospects (optimism - pessimism). Also the distress, strain and tendency to withdraw which are related to work are more frequent among upper level and upper secondary teachers, and pupil oriented activities and individual interests are fewer than among lower level teachers.

The general trend stated above is modified by two minor exceptions. First, a curvilinear effect on variables related to pupils´ behaviour and pupil-contacts is revealed: upper level teachers have more difficulties in upbringing, pupil contacts and tasks related to pupil welfare than others, and they show more reluctance, restlessness and feelings of aversion and meaninglessness related to work.

Second, small differences in health appear in such

variables as aches, symptoms connected with blood circulation, symptoms connected with respiratory organs, and the number of illnesses during the year. In all these variables, upper secondary teachers are somewhat healthier than comprehensive school teachers.

When evaluated from the Eta coefficients, the teaching level differences in well-being tend to be greater in the variables which concern the sociocultural and interpersonal relations, and smaller in the psychosomatic end-state variables or measures of satisfaction outside the work. (And, in effect, the health differences are opposite in direction to most of the other differences.) In other words, there are more differences in the perceived psycho-social working situation than in the personal psychosomatic responses to the situation.

One might also note that the teaching level differences tend to be greater in the variables which were concluded to show more frequent impairments of well-being among teachers. No technical ceiling effect, however, seems to be involved.

As already noted, one cannot attribute the differences in well-being to any single variables differentiating the background and work of teachers of different school levels. Only some guesses can be presented. First, the slightly better physical health of the upper secondary teachers might be related to differences in the biological and physico-chemical working environments of teachers who work with young adults as compared with the younger children attending the comprehensive school. It might also be possible that the better health of the upper secondary teachers reflects their higher socioeconomic status.

Teaching level differences in teacher-pupil relations are, of course, easily 'explained' by referring to the age of the pupils attending the upper level of the comprehensive school. In addition, the upper level consists of the last three school years obligatory for the whole age group - something which might contribute to a very low school motivation among many pupils at this school level. It is also possible that the occupational orientation, selection and recruitment of upper level and upper secondary teachers differs from those of lower level teachers with the result that the latter tend to be better satisfied with the teacher-pupil interaction comprised by teaching (cf. Vestre, 1976, note 17 on p. 36; Panhelainen & Malin, 1981). The path analyses of this study (run separately for the teaching level groups) do not, however, support this hypothesis.

Differences in teacher-parent relations can be assumed to be dynamically related to differences in teacher-pupil relations (Beckman, 1976; Kaufman et al., 1979; Vernberg & Medway, 1981). On the other hand, the closer teacher-parent cooperation among lower level teachers may reflect differences in the professional orientations of teachers. Also, culturally determined variation in conceptions of what is the adequate role of parents of children of different ages might be involved; and older pupils, if compared with the younger ones, apparently are less willing to allow their parents to get involved in their school attendance. Further,

the great gap between the present school and the education received by most parents can restrict the school-home cooperation especially at the upper school levels.

In regard to teaching level differences in the sociocultural relations of teachers, one is - once again - tempted to refer to the recent school reforms and public discussion of schools in Finland. The lower level schools were not very much affected by the reorganization compared with the upper level. Also, the unions and organizations of the lower level teachers were very early in favor of the reform while many reservations and opposing attitudes were presented by teachers of the upper school levels (Nummenmaa et al., 1962; Karvonen et al., 1965; Telemäki, 1973).

In actual practice, the upper secondary schools were also directly affected by the reform only to a limited degree. Besides being suspicious in regard to the background of pupils who began to enter the upper secondary schools after the new upper level (instead of the old middle schools), the upper secondary teachers were possibly affected by certain socio-psychological factors. For instance, their schools were and are usually located together with the upper level schools and these two levels have many teachers in common. Also the pre-reform background of teachers of these levels is partly similar, which may have contributed to producing similar or shared attitudinal atmospheres among upper level and upper secondary teachers. (Cf. Lauglo´s (1976) discussion of the attitudes of Norwegian upper secondary teachers in a comparable situation about ten years earlier.)

Further restlessness among upper secondary teachers is apparently caused by the recent planning of reforms of secondary education (begun in the early seventies (Komiteamietintö, 1973) and still continuing). Some proposals discussed in this context have been threatening the status and role of the upper secondary teachers (eg. restriction on the proportion of age groups entering upper secondary schools or raising the relative status of vocational secondary education). It seems very probable that these factors account for the fact that upper secondary teachers´ relations with school authorities are worse than those of upper level teachers.

One more innovation of the seventies has possibly caused sociocultural restlessness among teachers of the upper school levels but not among lower level teachers: The attempts to democratize the teacher-pupil relations by means of pupil participation in the school administration were opposed by many teachers (Karvonen & Niinistö, 1977; Niinistö, 1980) and this might also be reflected by the results of this study.

7.1.2 Path relations between background, work, and well-being

The path analyses of latent variables (run separately for the four teaching level groups) included variables related to (I) Local environment and school, (II) Personal background situation, (III) Work, (IV) Psycho-social working situation, and (V) Psychological well-being and health. In the recursive path models tested, the variable blocks of category (V) were treated as final dependent variables, and (I) through (IV), in this order, represent independent and/or mediating variables of the study.

In other words, an attempt was made to explain a set of somatic, psychosomatic, psychological and behavioural 'end-state' variables and defensive or coping responses, related to work or outside work (V), chain-wise by indicators

(a) of perceived stressors or dissatisfactions in the domains of interpersonal and sociocultural relations and material working conditions (IV),

(b) of work load, time budget and work contents (III),

(c) of age, sex, family situation and occupational background (II), and

(d) of the community, local environment and school.

As to the path structures shown by the teaching level groups in common, the following conclusions can be drawn:

(a) Systems which are logically close to each other show strong and universal interconnections, while variables representing phenomena from different domains tend to be almost independent of each other. In other words, the interconnections within the five groups of variables mentioned above are strong, but significant relations between the groups are rather weak and few in number.

(b) As an exception to the principle stated above, the measures of psychosomatic and psychological well-being in work (and almost identically well-being and health outside work also) show a number of relations with measures of the psycho-social working situation and satisfaction with material working conditions. In addition to these, some universal effects on the final dependent variables are shown by the personal background variables of age and sex.

(c) In agreement with many earlier research results, a teacher's evaluations of his pupil relations and pupil behaviour turn out to be the most consistent predictor of his psychological well-being in work, self-reported difficulty of work, and also of psychological well-being outside work. Some universal relations are also shown by evaluations of staff relations, parent relations, occupational future prospects and, to a minor degree, by satisfaction with material working conditions.

(d) The strongest effects of age and sex upon the final dependent variables are those on general somatic and

psychosomatic health and non-professional free time activeness - none of these refer directly to work. In addition, female teachers report more difficulties in work but, at the same time, general dissatisfaction with the occupation is expressed more by males than females.

(e) Local environment and school, personal background situation as well as the work and time budget variables show very few universal (common to the teaching level groups) effects upon the psycho-social working situation and well-being. Urban environments tend to be associated with less satisfying relations with school authorities and pupils. Older and male teachers report somewhat better relations to school authorities and possibilities of influencing their own work than do younger and female teachers.

(f) Similarly, very few universal relations are revealed between the latent variable clusters Local environment and school, Personal background situation, and Work. In effect, these are restricted to the effects of sex upon work: The sexes differ in the subjects they teach and - partly because of this but also directly - in the number of subjects/courses taught in and in the composition of work hours. In addition, the number of pupils and classes taught by a teacher depends on the school size.

In summary, the results shown in common by three or four of the four teaching level groups studied suggest that rather little of the variance in teachers' well-being can be explained by differences in the local environment and school, personal background situation or the composition of work and work load. In this respect, the results are analogous with those of the IEA project on school achievement where similar path analyses revealed only small effects of various teacher variables upon pupils' school behaviour and achievement (Noonan, 1981b). On the other hand, a reasonable number of connections between different measures of well-being can be found; even if the concept of well-being includes measures of satisfaction with different interpersonal and sociocultural relations together with psychological, psychosomatic and somatic measures of well-being.

These general conclusions are, however, somewhat modified by a closer inspection of the results group by group. Although not very large, the differences in the path structures seem to support the hypothesis that different factors account for variances in sociocultural, interpersonal, psychological and psychosomatic well-being of teachers of different school levels. No clearly different and integrated pictures of the determination of well-being among these groups can be drawn: there are some differences but these are not easy to interpret.

Without repeating here the detailed discussion on the teaching level differences in the path structures, the following points can be picked out:

(a) The negative effects of urban local environment upon teacher-pupil relations are strongest among teachers of the lowest grades. It seems as if the disorganizing effects of urban environment were more dominant in the case of younger children. The culture and behaviour of older children and teenagers may be less locally determined (and, to some degree, even international). It is also possible that some types of rural environments do not support the school motivation of older children who may, eg., perceive the utility of education as being lower than do youngsters in urban environments.

(b) Large school size has some negative effects upon staff relations and perceived possibilities of influencing one´s own work among lower level teachers, but not so among upper level or upper secondary teachers. This might be caused by differences in the distributions of school size: most really small schools with a low degree of specialization and differentiation among teachers are lower level schools, and almost all upper level and upper secondary schools may exceed in size the critical point below which the smallness of the school contributes to a positive atmosphere among teachers or provides possibilities for autonomous working. On the other hand, some positive effects of large schools and urban environments can be seen in the case of upper secondary teachers who, for instance, tend to be professionally more active when working in bigger schools.

(c) It is of special interest to note that very little if any of the variance in teachers´ well-being is accounted for by the recency of the local introduction of the comprehensive school system (the variable Year of school reform). Among upper secondary teachers, there is a weak negative effect of the recency of the reform upon staff relations. In the case of upper level teachers, this recency is related to a higher proportion of teachers who came from private secondary schools and this, in turn, is slightly related to occupational pessimism. For lower level teachers of grades 4-6, there is a small negative effect upon pupil relations.

Thus, the results show only to a very small extent the effects of the concrete changes in a teacher´s work which were brought about by the reform; and this holds true also in the case of upper level teachers who as a group were most affected by the reform. This does not, however, disprove the hypothesis (presented in the preceding section) that teaching level differences in socio-cultural well-being might be caused by controversies related to the reform: there still remains the possibility that teachers of different school levels were differentially influenced by the expectancies, fears, and public atmosphere accompanying the reform as a political decision, and this happened at the same time all over the country. In other words, it is hypothetized that the effects of the innovation process were more of a collective socio-cultural kind and less related to the concrete effects of the reform upon teachers´ daily work

(the introduction of classes with a wider range of abilities and attitudes, new curriculums, new learning materials etc. which occurred at different times in different municipalities).

Of course, this type of hypothesis cannot be tested by analysing the cross-sectional data of this study. One way to attempt this would be a content analysis of various documents from the seventies, eg. teachers' letters to newspapers and teachers' journals (cf. Telemäki, 1973), records of teacher meetings etc. These might represent indicators of 'alarm reactions on the socio-cultural level' (cf. Jenkins, 1979) and be useful for assessing teachers' attitudes in different parts of the country during different phases of the innovation process.

(d) Small teaching level differences in the effects of the work and time budget variables were found, but these are difficult to interpret. In general, these factors tend to account for the well-being and health variables more among upper secondary teachers than among comprehensive school teachers.

For none of the groups do the results support the common sense idea that the number of subjects/courses taught in, the number of pupils/classes taught or the amount and composition of working hours would essentially affect the amount of free time, interpersonal relations or different measures of well-being. Some negative effects of a small amount of free time can be seen, but the free time itself is only minimally related to the work variables. (It depends clearly more on sex and the family situation than on work, but it is of minimal importance also in explaining sex differences in the well-being and health variables.) In addition, some aspects of the results suggest that a large amount of work is associated with good job satisfaction and health.

It seems that the amount and composition of work does not generally exceed the limits of the working resources of teachers, nor
is the amount of work strictly determined by factors which were outside a teacher's own control. Accordingly, no simple causal relationship (in one direction only) prevails between work load and well-being. In saying this, one does not deny the possibility that some teachers have a work load which is too great for them personally. The critical amount of work, however, seems to depend on, for example, personal resources which are not adequately contained by the research data. In comparison to these unknown sources of working capacity, the effects of the objective amount of work turn out to be statistically less decisive.

(e) Finally, there are some teaching level differences in the associations between the psycho-social working conditions and the final dependent variables of the study. First, the percentages of variance explained in the well-being and health variables tend to be greater among

upper secondary teachers than among comprehensive school teachers. It seems as if the well-being of the former group were less differentiated than that of the latter. Strangely enough, the parent relations are also most strongly related to psychological well-being among upper secondary teachers who, thus, do not appear to be a group of impersonal academic professionals and immune to this kind of social relation.

Secondly, the results suggest that perceived inadequacies in the material working conditions are related to somatic and psychosomatic health among lower level teachers but not in the case of the upper school levels.

In effect, we are not able to propose any interpretations for these differences between the grade levels. It must be noted, however, that the nature and direction of causality is particularly disputable in the case of these correlations. Our measures of the psychosocial working conditions as well as the final dependent variables are both based on verbal self-reports which contain a subjective good/bad -evaluation.

Teaching level differences in the sex distributions of the subjects present one more factor which might have produced differences in the path structures. Besides influencing directly the correlations of the sex variable, it is possible that the structures themselves are different for the sexes. Although this hypothesis is not supported by the results of Brenner et al. (1979; 1981), it seems to be worth testing by further analysis of the present data.

7.2 Evaluation of the model and methods

Four basic features of the study are of importance at this point: (a) A general process model of stress was utilized as a starting point for the study; (b) The research material consists of cross-sectional questionnaire data; (c) As the main aim of the study, the path structure of the correlational determination of well-being among teachers was sought; and (d) A path analysis with latent variables was applied on the data.

No causal or process model can be properly tested by using cross-sectional survey data. Accordingly, the study does not allow for any conclusions regarding the adequacy of the Jenkins stress model. It remains only to evaluate how adequately the variables of the model were covered by the data. In this respect, two serious problems must be noted:

First, important forms and sources of adaptive capacities - personal as well as socio-cultural - are not represented by the empirical variables. The personal background variables age, sex, family situation, education and professional background have apparently been too global for these purposes. In addition, various personality variables which were of obvious importance in predicting a teacher's success in his work are totally lacking in the study.

Second, the very nature of the cross-sectional data prevents operational differentiation between the end-state variables and adaptive capacities implied by the process model of stress. In the empirical model, all satisfaction, well-being and health variables were treated as dependent ones. This explicit oversimplification of reality could be partly counterbalanced by reanalysing the data in order to test an alternative oversimplification: some of the stress and health variables could be tested as indicators of the adaptive capacities and, accordingly, as predictors for eg. the number of hours worked, self-reported strain and work or job satisfaction. Of course, the basic problems also remain unresolved by this procedure (as long as the data remains cross-sectional and the method of analysis allows for testing only recursive path models). Some new light could be thrown on the relations of the variables, however, by comparing the empirical fit of these alternative models.

Besides being cross-sectional, the data consist of subjective questionnaire responses. As one consequence of this, the empirical relationships between different types of variables can be differentially determined: in particular correlations between variables containing subjective evaluations (of whether the state of affairs is good or bad) may be exaggerated while the correlations of some more objective variables do not contain similar halo or related effects. This, in turn, may systematically affect the path structures revealed by the results. One must be very cautious in interpreting the relative sizes of the path coefficients - eg. when comparing the relation of job satisfaction to self-reported pupil relations and to work load.

Related distortions in the path structures may also have been caused by unequal reliabilities of the manifest research variables, especially in cases where a latent variable is represented by only one or a few manifest variables. The differences in the reliabilities should be taken into account especially in cases where the aim is to explore the relations between theoretical concepts assumed to underlie the empirical variables or when comparing these relations in different groups of subjects. A correction for attenuation in the primary correlation matrices (before conducting the path analyses) might be worth trying in this connection.

As a statistical device, the PLS analysis of path relations between latent variables turns out to possess certain very positive features together with serious limitations. For the purposes of this study the positive side is dominant: the method has made it possible to include a relatively large number of variables of different types within an integrated macro-model. As such, the method presents an effective tool for controlling many parallel effects - direct as well as indirect - possibly contained by the empirical correlations within a large set of independent and mediating variables. All alternative attempts to do this (by means of separate multiple regression analyses, canonical analyses or path analyses of manifest variables)

had inevitably failed in organizing the results in a way comparable with that of the present method.

On the other hand, the method is mainly applicable for very exploratory research purposes and only permits a rough and ready description of the empirical relationships. Partly due to the fact that the specific computer program used is still under further development, the statistical tests were not readily available for evaluating how well the empirical correlations were accounted for by the path structures revealed. Similarly, the teaching level differences in the path structures were not tested for significances.

In effect, a preliminary phase of analysing the data is represented by the PLS analyses of this study. A continuation of the study could attempt to specify and test the results by applying further developed forms of PLS based methods (Lohmöller, 1981) or the LISREL method of path analysis with latent variables. New opportunities for doing this are created by the interpretative hypotheses evoked by the PLS results.

Finally, one might try to evaluate the general fruitfulness of macro-models of the kind used in this study. They easily have a flavor of being attempts at comprehensive explanations which, however, turn out to be of a rather low explanatory power. By including a great set of variables of different levels of natural systems into a single model, we seem to get results which suggest that different types of phenomena tend to be rather independent of each other or that many but very weak relations can be found between them.

Of course, this overall result can be due to an inadequate set of variables included within the model; or an over-inclusion of irrelevant variables can cause statistical 'noise' which tends to disguise some weak but meaningful interconnections. It is also possible that a macro-model almost inevitably tends to be too loose and superficial in formulation: variables which are felt to be meaningful for describing differences in systems of one level (eg. the degree of urbanness in the case of local communities) may not be the most useful ones for predicting phenomena at some other level (eg. pupil behaviour and school motivation).

In the case of a cross-sectional macro-model, however, one must not overemphasize the smallness of the connections between phenomena of different levels. In effect, they are what can be expected, eg. as a corollary of the partial autonomy of interrelated systems or because of the process character of the life and adaptation of the systems. Consequently, even the very weak statistical relations may be worth further inquiry and they may contain important starting points for other types of study: more specific and detailed theoretical analyses, case studies and better controlled longitudinal studies.

8 SUMMARY

The aims of the study were:
(a) to describe, evaluate and compare the
-local environment and school,
-personal and professional background,
-composition of work and time budget,
-sociocultural relations,
-interpersonal relations,
-job-satisfaction,
-psychological well-being, and
-stress and health
among teachers of different levels working within the Finnish general education system; and
(b) to explore the path structure of the correlations between these variable groups, ie. an attempt was made to develop a macro-model describing the correlational determination of well-being and health among teachers.

The research problems were loosely conceptualized in terms of a general model proposed by Jenkins (1979), which emphasizes the multi-level character of the phenomena involved in the stress and adaptation process: the biological, psychological, interpersonal and sociocultural levels of human life are all considered as sources and domains of adaptive resources, stressors, alarm reactions, defensive and coping responses as well as being domains of the end-states of the process. Accordingly, a macro-model of stress, well-being and health at work should consist of these levels and of the structure of their interrelations.

The population of the study consisted of the membership of the Teachers´ Trade Union (OAJ), from which a systematic sample of 2,618 persons was drawn. The material was collected in the form of a postal inquiry in April-May 1978. The rate of return was 75 %.

The level of teachers´ well-being was concluded to vary as a function of what aspect of it is considered. In regard to the general state of health and most psychosomatic and psychological symptoms of stress (the biological and psychological levels), teachers form a relatively healthy occupational group. The prevalence of certain stress symptoms, however, seems to be rather high, especially that of tiredness and headaches. On the other hand, the results on various measures of interpersonal and, especially, on sociocultural relations suggest a rather high rate of impairment of well-being. Finnish teachers rate their relationships with their pupils, pupils´ parents, school authorities and public opinion clearly less favorably than do their colleagues in the other Nordic countries.

A rather consistent pattern for well-being was shown by the teaching level differences. In general, the situation is better among lower level teachers than among teachers of the upper level of the comprehensive school or upper secondary school. This holds true especially in the case of sociocultural and interpersonal relations. The least

satisfactory pupil relations were reported by the upper level teachers of the comprehensive school. Differences in the psychological and psychosomatic stress symptoms as well as those in the general state of health were small; but apparently upper secondary teachers are physically healthier than teachers in the comprehensive school.

The intercorrelations of the research variables were analysed by means of the latent variables path analysis with parameter estimation under partial least squares (PLS; Wold, 1975; Noonan, 1981a).

A teacher´s self-reports about his pupil relations and pupils´ behaviour turn out to be the strongest and most consistent predictors of his job satisfaction and psychological well-being at work as well as of his psychological well-being outside working life. Somewhat smaller but consistent effects upon these dependent variables are shown also by self-reported staff and parent relations, by a measure of occupational future prospects and, to a lesser degree, by satisfaction with material working conditions. The causal direction of all these path relations is disputable.

Rather few and weak effects - direct as well as indirect - upon the dependent variables were shown by variations in the local environment and school, personal and professional background or composition of work and time budget. For instance, the number of classes and pupils taught and the subject taught by a teacher are to some extent related to his work load which, in turn, is only to a small extent related to the amount of his personal free time. (Free time is clearly more strongly determined by a teacher´s sex and family situation than by his work.) All these factors, however, have practically no effects upon the dependent well-being variables.

Urban environments tend to be directly connected with less satisfying relations with school authorities and pupils. Large school size (which itself depends on the local environment) has some negative effects upon staff relations and perceived possibilities of influencing one´s own work, but practically no effects eg. upon pupil relations. These effects of the local environment and school are stronger among lower level teachers than among upper level or upper secondary teachers.

The age and sex of a teacher show some direct effects (ie. not mediated eg. by the work or the amount of free time) upon job satisfaction, professional activeness, psychosomatic stress symptoms and health.

Apart from the effects of the local environment, the teaching level differences in the path structures were rather small and difficult to interpret.

TIIVISTELMÄ: Opettajien työ, hyvinvointi ja terveys.

Tutkimuksen tarkoitus oli
(a) kuvailla, arvioida ja vertailla Suomen yleissivistävän koulun eri asteilla työskentelevien opettajien
-koulupaikkakuntaa ja koulua,
-henkilökohtaista ja ammatillista taustatilannetta,
-työn koostumusta ja ajankäyttöä,
-työtyytyväisyyttä,
-psyykkistä hyvinvointia ja
-kuormitusoireita ja terveyttä, sekä
(b) analysoida näiden muuttujaryhmien välisten yhteyksien polkurakennetta tavoitteena rakentaa yleismalli kuvaamaan opettajien hyvinvoinnin ja terveyden korrelatiivista määräytymistä.

Tutkimusongelmaa jäsennettiin soveltamalla väljästi Jenkinsin (1979) esittämää mallia, jossa tähdennetään stressi- ja sopeutumisprosessiin osallistuvien ilmiöiden monitasoisuutta: Siihen osallistuvat inhimillisen elämän biologisen, psykologisen, interpersoonallisen ja sosiokulttuurisen tason ilmiöt; ja nämä kaikki voivat sisältää tai ilmaista adaptiivisia resursseja, stressitekijöitä, hälytysreaktioita, puolustuskäyttäytymistä ja stressiprosessin lopputiloja. Vastaavasti on työhön liittyvää stressiä, hyvinvointia ja terveyttä koskevan yleismallin otettava huomioon nämä tasot ja kuvattava niiden välisten suhteiden rakennetta.

Tutkimuksen perusjoukkona oli Opettajien ammattijärjestö OAJ:n jäsenkunta, josta poimittiin tasaväliotannalla 2,618 henkilön otos. Tutkimusaineisto kerättiin postikyselynä huhti-toukokuussa 1978. Palautusprosentti oli 75.

Opettajien hyvinvoinnin tasosta muodostuvan kuvan todettiin vaihtelevan riippuen siitä, mitä hyvinvoinnin puolia tarkastellaan. Yleisen terveydentilansa ja myös monien psykosomaattisten ja psyykkisten stressioireiden esiintymisen perusteella (biologinen ja psykologinen taso) opettajat ovat suhteellisen terve ammattiryhmä, joskin eräät stressioireet (erityisesti väsymys ja päänsärky) ovat huomattavan yleisiä. Samalla osoittavat erilaiset ihmissuhteiden ja erityisesti yhteiskuntasuhteiden mitat huomattavan yleisiä hyvinvoinnin häiriöitä. Suomalaiset opettajat arvioivat suhteensa oppilaisiin, oppilaiden vanhempiin, kouluviranomaisiin ja yleiseen mielipiteeseen selvästi kielteisemmiksi kuin heidän pohjoismaiset kolleegansa vastaavanlaisissa tutkimuksissa.

Opetus- ja kouluasteiden väliset erot hyvinvoinnissa ovat kohtalaisen johdonmukaisia. Tilanne on monessa suhteessa parempi ala-asteen opettajien kohdalla kuin peruskoulun yläasteen ja lukion opettajilla; näin on erityisesti ihmis- ja yhteiskuntasuhteiden osalta. Oppilassuhteet ovat epätyydyttävimpiä yläasteen opettajilla. Erot psyykkisissä ja psykosomaattisissa stressioireissa sekä yleisessä terveydentilassa ovat pieniä. Viimeksi mainittu kriteeri osoittaa lukion opettajat peruskoulun opettajia terveemmiksi.

Tutkimusmuuttujien väliset korrelatiiviset yhteydet ana-

lysoitiin latenttien muuttujien polkuanalyysilla käyttämällä ositettujen neliöiden pienimmän summan menetelmää (PLS; Wold, 1975; Noonan, 1981a).

Opettajien ammatissa viihtymisen sekä työhön ja myös työn ulkopuoliseen elämään liittyvän psyykkisen hyvinvoinnin voimakkaimmiksi ja eri opetusasteilla yhtenäisiksi korrelaateiksi osoittautuvat heidän arvionsa siitä, miten tyydyttäviä ovat oppilassuhteet ja oppilaiden käyttäytyminen. Samanlaisia mutta heikompia yhteyksiä on myös arvioinneilla opettajien keskinäisistä suhteista ja opettajat-vanhemmat -vuorovaikutuksesta sekä ammatin tulevaisuutta koskevalla optimismilla ja aineellisten työolojen tyydyttävyydellä. Kaikkien näiden polkuyhteyksien kausaalinen tulkittavuus on tutkimuksen puitteissa epäselvä.

Hyvinvointia kuvaavat riippuvat muuttujat ovat melko vähän yhteydessä - niin suoraan kuin epäsuorastikin - muuttujiin, jotka koskevat paikkakuntaa ja koulua, opettajan henkilökohtaista ja ammatillista taustatilannetta tai työn koostumusta ja ajankäyttöä. Esimerkiksi opetusryhmien ja oppilaiden määrä ja opetusaine ovat jonkin verran yhteydessä opettajan työmäärään, joka puolestaan on vain vähän yhteydessä henkilökohtaiseen käyttöön jäävän vapaa-ajan määrään. (Vapaa-ajan määrä riippuu selvästi enemmän suoraan opettajan sukupuolesta ja perhetilanteesta kuin hänen työstään.) Millään näistä muuttujista ei kuitenkaan ole merkittäviä yhteyksiä varsinaisiin hyvinvoinnin kriteereihin.

Urbaani paikkakunta liittyy jonkin verran epätyydyttäviin oppilas- ja viranomaissuhteisiin. Suuri koulukoko (joka itse selittyy osin paikkakunnan urbaanisuudella) näyttää vaikuttavan negatiivisesti opettajien keskinäisiin suhteisiin sekä havaittuihin mahdollisuuksiin vaikuttaa omaan työhönsä, mutta ei esimerkiksi opettaja-oppilas -suhteisiin. -Nämä paikkakunnan ja koulun vaikutukset ovat voimakkaampia ala-asteen kuin yläasteen ja lukion opettajien keskuudessa.

Opettajan sukupuolella ja iällä on eräitä suoria yhteyksiä (siis eivät esimerkiksi työn tai vapaa-ajan määrän välittämiä) työtyytyväisyyteen, ammatilliseen aktiivisuuteen, psykosomaattisiin stressioireisiin ja terveyteen.

Polkurakenteissa esiintyvät opetusasteiden väliset erot ovat pieniä ja vaikeasti tulkittavia lukuunottamatta eroja paikkakuntatyypin vaikutuksissa.

REFERENCES

Ahlin, M. & Jonsson, E. (1979) Ett psykosocialt arbetssätt. Utvärdering av ett personalvårdsförsök för lärare. Stockholm: Arbetarskyddsfonden.

Aho, S. (1974a) Oppilailla esiintyvät käyttäytymisongelmat ja kouluympäristö. Turun yliopiston kasvatustieteen laitos, Julkaisusarja B, No 1.

Aho, S. (1974b) Koulusuoritusten yhteys oppilailla esiintyviin käyttäytymisongelmiin ja kasvuympäristöön. Turun yliopiston kasvatustieteen laitos, Julkaisusarja A, No 32.

Alestalo, M. & Uusitalo, H. (1978) Occupational prestige and its determinants: The case of Finland. Research group for comparative sociology, University of Helsinki, Research Reports No. 20.

Allardt, E. (1973) About dimensions of welfare. An exploratory analysis of a comparative Scandinavian survey. Research Group for Comparative Sociology, University of Helsinki, Research Reports No. 1.

Allardt, E. (1975) Att ha, att älska, att vara. Om välfärd i Norden. Lund: Argos.

Aronen, L-M., Kangastupa, L. & Mäkelä, M. (1978) Opettajien työkuormitus ja työtyytyväisyys sekä niiden yhteydet terveyteen ja hyvinvointiin. Jyväskylän yliopiston psykologian laitos, pro gradu -tutkielma.

Askelo, S. (1981) Opettajien työmäärätutkimus. Tilastokeskus. Tutkimuksia N:o 66. Helsinki: Valtion painatuskeskus.

Beckman, L.J. (1976) Causal attribution of teachers and parents regarding children´s performance. Psychology in the Schools, 13, 212-218.

Behrman, E.H. (1976) Teacher-student relations as a predictor of teachers´ job satisfaction. (Doctoral dissertation, University of Pennsylvania). Dissertation Abstracts International, 1977, 37(9-A), 5467.

Bentz, W.K., Hollister, W.G. & Edgerton, J.W. (1971) An assessment of the mental health of teachers: A comparative analysis. Psychology in the Schools, 8(1), 72-76.

Bergbaum, G., Noble, G. & Whiteside, M.T. (1969) Intra-occupational prestige differentiation in teaching. Paedagogica Europaea, 5(1), 41-59.

Biddle, B.J. (1970) Role conflicts perceived by teachers in four English speaking countries. Comparative Education Review, 14(1), 30-44.

Biddle, B.J. & Thomas, E., Eds. (1966) Role theory: Concepts and research. New York: John Wiley & Sons.

Blauner, R. (1964) Alienation and freedom. Chicago: University of Chicago Press.

Blichfeldt, J.F. (1975) Relations between school and the place of work. Acta Sociologica, 18, 330-343.

Blichfeldt, J.F. (1980) Grunnskolelaerernes arbeidsmiljö. Oslo: Arbeidsforsknings-instituttene.

Bloch, A.M. (1978) Combat neurosis in inner-city schools. American Journal of Psychiatry, 135(10), 1189-1192.

Bloland, P.A. & Selby, T.J. (1980) Factors associated with career chance among secondary school teachers: A review of literature. Educational Research Quarterly, 5(3), 13-24.

Borg, K., Florander, J., Jensen, L., Kreiner, S. & Moeller, K. (1981) Laerernes arbejdsmiljoe i folkeskolen. Koebenhavn: Danmarks Laererforening og Danmarks Paedagogiske Institut.

Bower, E.M. & Greenfield, S. (1973) Disturbed teachers whose credentials were revoked: A comparison with other teachers. Psychology in the Schools, 10(1), 54-60.

Bradburn, N. (1969) The structure of psychological well-being. Chicago: Aldine.

Brenner, S-O, Tellenback, S. & Walk, C. (1979) Arbete, hälsa och välbefinnande för lärare och skolledare inom grundskolan samt för lärare inom barnomsorgen. I: Psykosocial miljö, välbefinnande och hälsa för lärare i grundskolan. Rapporter från laboratoriet för klinisk stressforskning, Karolinska institutet, Stockholm. No. 108.

Brenner, S-O., Tellenback, S. & Walk, C. (1981) Work, health and well-being for teachers in Swedish comprehensive schools. VI: Structural models of teacher stress in Swedish comprehensive schools. Reports from the Laboratory for Clinical Stress Research, Karolinska Institute, Stockholm. No. 111.

Brodsky, C.M. (1977) Long term work stress in teachers and prison guards. Journal of Occupational Medicine, 19(2), 133-138.

Brophy, J.E. & Good, T.L. (1974) Teacher - student rela-

tionships: Causes and consequences. New York: Holt, Rinehart & Winston.

Buerkens, B.Q. (1973) The relationship between job satisfaction of school teachers and their perceived conflicts with school officials, principals, other teachers, and parents. (Doctoral dissertation, University of Missouri - Columbia). Dissertation Abstracts International, 1974, 35(2-A), 740-741.

Cameron, C. (1971) Fatigue problems in modern industry. Ergonomics, 14(6), 713-720.

Cameron, C. (1973) A theory of fatigue. Ergonomics, 16(5), 633-648.

Caplan, R.D., Cobb, S., French, J.R.P., Harrison, R.V. & Pinneau, S.R. (1975) Job demands and worker health. U.S. Department of Health, Education and Welfare Publication No. 75-160. Washington, D.C.: U.S. Government Printing Office.

Carver, F. & Sergiovanni, T. (1969) Organizations and human behavior: Focus on schools. New York: McGraw-Hill.

Caspari, I.E. (1976) Troublesome children in class. London: Routledge & Kegan Paul.

Central Statistical Office of Finland (1979a) Official statistics of Finland XA:100. General Education, School year 1977/1978. Helsinki: Valtion painatuskeskus.

Central Statistical Office of Finland (1979b) Survey on living conditions 1978. Central Statistical Office of Finland, Studies No 51. Helsinki: Valtion painatuskeskus.

Chambers, E.A. (1961) Industrial fatigue. Occupational Psychology, 35(1), 44-57.

Charters, W.W.Jr. (1970) Some factors affecting teacher survival in school districts. American Educational Research Journal, 7(1), 1-27.

Coates, T.J. & Thoresen, C.E. (1976) Teacher anxiety: A review with recommendations. Review of Educational Research, 46(2), 159-184.

Coller, R.D. (1975) An analysis of teacher absenteeism and its relationship to teacher morale and demographic characteristics of teachers. (Doctoral dissertation, University of Michigan). Dissertation Abstracts International, 1976, 36(10-A), 6388.

Corwin, R.G. & Wagenaar, T.C. (1976) Boundary interaction

between service organizations and their publics: A study of teacher-parents relationships. Social Forces, 55, 471-492.

Daleva, M. & Hadjiolova, I. (1978) Biochemical aspects of strain in teachers at work. XIX International Congress on Occupational Health. Dubrovnik, Jugoslavia 25.-30. September 1978. Abstracts, p. 316.

DiCaprio, P.R. (1974) A study of the relationship of organizational climate to job satisfaction of teachers in selected rural and suburban secondary schools. (Doctoral dissertation, State University of New York at Albany). Dissertation Abstracts International, 1974, 35(6-A), 3334.

Douglas, S.A. (1976) Social-psychological correlates of teacher absenteeism: A multi-variate study. (Doctoral dissertation, The Ohio State University). Dissertation Abstracts International, 1977, 37(11-A), 7033-7034.

Dreeben, R. (1976) The organizational structure of schools and school systems. Ch. 35 (pp. 857-873) in: J.J. Loubser, R.C. Baum, A. Effrat & V.M. Lidz (Eds.), Explorations in general theory in social science, Vol. II. New York: Free Press.

Duncan, O.D. (1975) Introduction to structure equation models. New York: Academic Press.

Dunham, J. (1976) Stress situations and responses. Ch. 3 (pp. 19-47) in: National Association of Schoolmasters (Ed.), Stress in schools. Hemel Hempstead: National Association of Schoolmasters.

Dunham, J. (1977) The effects of disruptive behaviour on teachers. Educational Review, 29(3), 181-187.

Dunham, J. (1981) Disruptive pupils and teacher stress. Educational Research, 23(3), 205-213.

Eriksson, B. & Larsson, T. (1974) Lärarnas upplevelse av skolarbetet. En intensivundersökning på fyra grundskolor våren 1974. Pp. 113-205 in: Skolan som arbetsplats: Rapporter från undersökningar genomförda av utredningen om skolans inre arbete - SIA, Del 1, 1974:1. Stockholm: Utbildningsdepartementet.

Fountain, P.A.J. (1975) What teaching makes to teachers: The teacher as a worker. (Doctoral dissertation, Yale University). Dissertation Abstracts International, 1975, 36(5-B), 2446.

Fox, A.J. & Adelstein, A.M. (1978) Occupational mortality: Work or way of life? Journal of Epidemiology and

Community Health, 32(2), 73-78.

Frankenhaeuser, M., Rauste von Wright, M., Collins, A., von Wright, J., Sedvall, F. & Swahn, C-G. (1978) Sex differences in psychoneuroendocrine reactions to examination stress. Psychosomatic Medicine, 40, 334-343.

Fraser, G. (1970) Organizational properties and teacher reactions. Comparative Education Review, 14(1), 20-29.

Fuller, F.F. (1969) Concerns of teachers: A developmental conceptualization. American Educational Research Journal, 6, 207-226.

Gardell, B. & Westlander, G. (1968) Om industriarbete och mental hälsa. Stockholm: PA-rådet.

Getzels, J.V. & Guba, E.G. (1954) Role conflict and effectiveness: An empirical study. American Sociological Review, 19, 164-175.

Getzels, J.V. & Guba, E.G. (1955) The structure of role conflicts in teaching situation. Journal of Educational Sociology, 29(1), 30-39.

Grace, G.R. (1972) Role conflict and the teacher. London and Boston: Routledge & Kegan Paul.

Gross, N., Mason, W.S. & McEachern, A.W. (1958) Explorations in role analysis: Studies of the school intendency role. New York: John Wiley & Sons.

Gröhn, T. (1979) Opettajien ongelmallisina kokemat koulutilanteet ja heidän toimintansa näissä tilanteissa. Helsingin yliopiston kasvatustieteen laitos, Tutkimuksia N:o 72.

Gröhn, T. (1980) Opettajan interaktiovalmiuksien parantaminen luokkaongelmien simulointia hyväksi käyttäen. Helsingin yliopiston kasvatustieteen laitos, Tutkimuksia N:o 80.

Haavio-Mannila, E. (1970) Sex differences in satisfaction: A study on the satisfaction with family, work, leisure, and life among men and women. University of Helsinki, Department of Sociology, Research Reports No. 153.

Hafford, H.H. (1976) The measurement of factors of satisfaction and dissatisfaction which affect Tennessee teachers in their work. (Doctoral dissertation, the University of Tennessee). Dissertation Abstracts International, 1977, 37(8-A), 5062-5063.

Hakonen, M., Sailas, E. & Vasala, P. (1981) Suomenruotsa-

laisten opettajien työ, terveys ja hyvinvointi erilaisissa kuntaryhmissä. Jyväskylän yliopiston psykologian laitos, pro gradu -tutkielma.

Halttunen, L., Jokinen, H. & Vesanen, T. (1978) Opetustyön tavoiteongelmien yhteydet terveyteen ja hyvinvointiin peruskoulun opettajilla. Jyväskylän yliopiston psykologian laitos, pro gradu -tutkielma.

Handy, C. (1978) The family: Help or hindrance? Ch. 4 (pp. 107-123) in: C.L. Cooper & R. Payne (Eds.), Stress at work. Chichester: John Wiley & Sons.

Heinilä, K. (1964a) Voimistelunopettajat ja liikuntakasvatus oppikoulun sosiaalisessa järjestelmässä. Helsingin yliopiston sosiologian laitos. Tutkimuksia N:o 39.

Heinilä, K. (1964b) Tyytyväiset ja tyytymättömät voimistelun- opettajat. Stadion, 1964, N:ot 1 ja 2.

Hicks, F.P. (1933) The mental health of teachers. New York: Cullman & Ghertner.

Hjelm, E., Siltanen, J. & Topelius, T. (1979) Opettajien vaikutusmahdollisuudet työssä, opetusresurssien riittävyys, työssä saatu tuki ja näiden yhteydet opettajien hyvinvointiin peruskoulujärjestelmään siirtymisen eri vaiheissa. Jyväskylän yliopiston psykologian laitos, pro gradu -tutkielma.

Holdaway, E.A. (1978) Facet and overall satisfaction of teachers. Educational Administration Quarterly, 14(1), 30-47.

Hoppock, R. (1935) Job satisfaction. New York: Harper.

House, J.S. (1974) Occupational stress and coronary disease: A review and theoretical integration. Journal of Health and Social Behavior, 15(1), 12-27.

Hoyle, E. (1969) The role of the teacher. London: Routledge & Kegan Paul.

Husen, T. (1968) Skola för 80-talet. Stockholm: Almquist & Wicksell.

Israel, J. (1971) Alienation. Stockholm: Raben & Sjögren.

Jackson, P.W. (1968) Life in classrooms. New York: Holt, Rinehart & Winston.

Jenkins, C.D. (1979) Psychosocial modifiers of responses to stress. Journal of Human Stress, 5(4), 3-15.

Jöreskog, K.G. & Sörbom, D. (1978) LISREL IV: Analysis of linear structural relationships by the method of

maximum likelihood. 2nd ed. Chicago: International Education Services.

Kahn, R.L. & Quinn, R.P. (1970) Role stress: A framework for analysis. Ch. 3 (pp. 50-115) in: Alan McLean (Ed.), Mental health and work organizations. Chicago: Rand McNally.

Kalimo, R. (1980) Stress in work: Conceptual analysis and a study on prison personnel. Scandinavian Journal of Work, Environment & Health, 6, Supplement 3.

Kalimo, R. & Olkkonen, M. (1979) Vankeinhoitohenkilöstön työ ja hyvinvoinnin häiriöt. Osa II: Terveys ja työolot, vaikutussuhteiden tarkastelu. Työterveyslaitoksen tutkimuksia 138. Helsinki: Työterveyslaitos.

Kalimo, R., Kauppinen-Toropainen, K. & Lindström, K. (1979) Psyykkinen työsuojelu. Haittatekijä- ja toimialakohtainen katsaus. Työterveyslaitos. Katsauksia 30. Helsinki: Työterveyslaitos.

Kari, J., Remes, P. & Väänänen, J. (1980) Häiriöt ja häiriköt. Koulun työrauha tutkimuksen valossa. Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos. Selosteita ja tiedotteita 160.

Karvonen, J. & Niinistö, K. (1977) Kouluneuvostouudistustutkimus. Turun yliopiston kasvatustieteen laitos, Julkaisusarja A, No 49.

Karvonen, J., Pitkänen, P. & Ruoppila, I. (1965) Virallisia kasvatustoimenpiteitä koskevat odotukset. Kansalaiskasvatuksen keskus ry., Monistesarja 9/65.

Kasl, S. (1978) Epidemiological contributions to the study of work stress. Ch. 1 (pp. 3-48) in: C.L. Cooper & R. Payne (Eds.), Stress at work. Chichester: John Wiley & Sons.

Kaufman, A.S., Wood, M.M. & Swan, W.W. (1979) Dimensions of problem behaviors of emotionally disturbed children as seen by their parents and teachers. Psychology in the Schools, 16, 207-217.

Keavney, G. & Sinclair, K.E. (1978) Teacher concerns and teacher anxiety: A neglected topic of classroom research. Review of Educational Research, 48(2), 273-290.

Klason, L.E. (1971) Insyn i skolan. Stockholm: Sveriges Lärarförbund.

Komiteamietintö (1973) Vuoden 1971 koulutuskomitean mietintö. Komiteamietintö 1973:52. Helsinki: Valtion painatuskeskus.

Kornhauser, A. (1965) Mental health of the industrial worker. New York: John Wiley & Sons.

Koskenniemi, M. (1965) The development of young elementary school teachers. Suomalaisen Tiedeakatemian toimituksia, sarja B, 138.

Koskenniemi, M. (1969) Opettajanuran kolmannes takana päin. Helsingin yliopiston kasvatustieteen laitos, Tutkimuksia N:o 2.

Koskinen, M-L., Malinen, R. & Matinheikki, K. (1979) Peruskoulun yläasteen opettajien sosiaalisesta vuorovaikutuksesta koulun sosiaalisessa alasysteemissä. Jyväskylän yliopiston psykologian laitos, pro gradu -tutkielma.

Kyriacou, C. (1980) Sources of stress among British teachers: The contribution of job factors and personality factors. Ch. 5 (Pp 113-128) in: C.L. Cooper & J. Marshall (Eds.), White collar and professional stress. Chichester: John Wiley & Sons.

Kyriacou, C. & Sutcliffe, J. (1977) Teacher stress: A review. Educational Review, 29(4), 299-306.

Kyriacou, C. & Sutcliffe, J. (1978a) A model of teacher stress. Educational Studies, 4(1), 1-6.

Kyriacou, C. & Sutcliffe, J. (1978b) Teacher stress: Prevalence, sources and symptoms. British Journal of Educational Psychology, 48(2), 159-167.

Kyriacou, C. & Sutcliffe, J. (1979) Teacher stress and satisfaction. Educational Research, 21(3), 89-96.

Kyöstiö, O.K. (1968) A study of teacher role expectations. Helsinki: Suomalaisen Tiedeakatemian toimituksia, sarja B, 154.

Käppi, P. (1968) Maaseudun koulut ja yhdistetyt luokat. Kouluhallituksen julkaisuja n:o 12b. Helsinki: Kouluhallitus.

Lauglo, J. (1976) Teachers' attitudes and the school context: The case of upper secondary teachers in Norway. Comparative Education Review, 20(1), 61-78.

Lauren, L. (1970) Oppikoulun opettajan työmäärää, ammattia ja ammattijärjestön luonnetta koskevista asenteista. Tampereen yliopiston kasvatustieteen laitos, pro gradu -tutkielma. Referaatti: Kasvatus, 2, 358-359.

Lazarus, R. (1966) Psychological stress and the coping process. New York: McGraw-Hill.

Lazarus, R. (1971) The concepts of stress and disease. Pp. 53-58 in: L. Levi (Ed.), Society, stress and disease. Vol. 1. London: Oxford University Press.

Levi, L. (1977) Työelämässä esiintyvän stressin ennaltaehkäisystä. Työterveyslaitos. Katsauksia 11. Helsinki: Työterveyslaitos.

Locke, E.A. (1976) The nature and causes of job satisfaction. Ch. 30 (pp. 1297-1349) in: M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally.

Lohmöller, J-B. (1981) LVPLS: Latent variables path analysis with parameter estimation under partial least squares (PLS). Program manual. Fachbereich Pädagogik, Hochschule der Bundeswehr, Munchen.

Lortie, D.C. (1975) Schoolteacher: A sociological study. Chicago: The University of Chicago Press.

Louhimo, R. (1969) Nuoret opettajat ja ammatissa viihtyminen. Helsingin yliopiston kasvatustieteen laitos, Tutkimuksia N:o 1.

Lundberg, M., Ed. (1980a) Arbete, hälsa och välbefinnande för lärare inom grundskolan i Norden. Delrapport I: Teoretisk referensram och metod. Rapporter från laboratoriet för klinisk stressforskning, Karolinska institutet, Stockholm. Nr 115.

Lundberg, M., Ed. (1980b) Arbete, hälsa och välbefinnande för lärare inom grundskolan i Norden. Delrapport II: Lärarnas bakgrund, familjesituation, tjänsteförhållanden, skolort och skola. Rapporter från laboratoriet för klinisk stressforskning, Karolinska institutet, Stockholm. Nr 116.

Lundberg, M., Ed. (1980c) Arbete, hälsa och välbefinnande för lärare inom grundskolan i Norden. Delrapport III: Skolans fysiska miljö. Rapporter från laboratoriet för klinisk stressforskning, Karolinska institutet, Stockholm. Nr 117.

Lundberg, M., Ed. (1980d) Arbete, hälsa och välbefinnande för lärare inom grundskolan i Norden. Delrapport IV: Lärarnas hälsa och välbefinnande. Rapporter från laboratoriet för klinisk stressforskning, Karolinska institutet, Stockholm. Nr 133.

Lundberg, M., Ed. (1981) Arbetsmiljö, hälsa och välbefinnande för lärare inom grundskolan i Norden. Stockholm: Gotab.

Lundman, L. (1981) Forskning om lärare. Högskolan för lärarutbildning i Stockholm, Institutionen för peda-

gogik. Rapport 2/1981.

Löfgren, H. (1980) Lärarnas arbetsmiljö. Lunds Universitet, Pedagogiska institutionen. Pedagogiska rapporter 1980:23.

Makkonen, R. (1971) Tutkimus kansakoululaitoksen opettajiston työmäärästä. Helsinki: Suomen Opettajain Liitto.

Manwiller, L.V. (1958) Expectations regarding teachers. Journal of Experimental Education, 26, 319-324.

Marris, P. (1974) Loss and change. New York: Pantheon.

McFarland, R.A. (1971) Understanding fatigue in modern life. Ergonomics, 14(1), 1-11.

McIntire, W.G. & Drummond, R.J. (1975) The public schools as a work environment. Psychology in the Schools, 12(3), 269-273.

McLoughlin, J.W. & Shea, J.T. (1960) California teachers' job dissatisfactions. California Journal of Educational Research, 11, 216-224.

METELI (1977) Ammattiasema, työolot ja sairastavuus metalliteollisuuden henkilöstöryhmissä. Liikunnan ja kansanterveyden julkaisuja 18. Jyväskylä: Liikunnan ja Kansanterveyden edistämissäätiö.

Musgrove, E. (1967) Teachers' role conflicts in the English grammar and secondary modern school. International Journal of Educational Sciences, 2(1), 61-68.

Musgrove, F. & Taylor, P.H. (1965) Teachers' and parents' conceptions of the teacher's role. British Journal of Educational Psychology, 35(2), 171-179.

Musgrove, F. & Taylor, P.H. (1969) Society and the teacher's role. London: Routledge & Kegan Paul.

Mäkinen, R. (1974a) Työn, perhe-elämän ja vapaa-ajan mielenterveydellinen kokeminen ja psykosomaattiset oireet opettajilla. Reports from the Department of Psychology, 158. University of Jyväskylä.

Mäkinen, R. (1974b) Haittaavat rasitustekijät opetustyössä. Opettaja 33-34/1974, 14-16.

Mäkinen, R. (1975) Generalization of mental health across life sectors. Scandinavian Journal of Psychology, 16, 225-228.

Mäkinen, R. (1980a) Peruskoulun ja lukion opettajien työolot, terveys ja hyvinvointi. Osaraportti I: Tutkimusaineiston sekä eri opettajaryhmien taustan ja työn

yleiskuvailu. Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos. Selosteita ja tiedotteita 142.

Mäkinen, R. (1980b) Peruskoulun ja lukion opettajien työolot, terveys ja hyvinvointi. Osaraportti III: Psyykkisen hyvinvoinnin ja terveyden taso sekä siihen yhteydessä olevat tekijät. Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos. Selosteita ja tiedotteita 144.

Mäkinen, R. & Penttonen, M. (1980) Peruskoulun ja lukion opettajien työolot, terveys ja hyvinvointi. Osaraportti II: Fyysinen työympäristö ja työn aineelliset edellytykset. Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos. Selosteita ja tiedotteita 143.

Mäntyniemi, A-L. & Haikola, S-L. (1975) Vanhempien kasvatusasenteiden, opettajan opetusasenteiden ja kasvattajien välisen normikonfliktin yhteys oppilaiden käyttäytymishäiriöihin oppitunneilla. Jyväskylän yliopisto. Kasvatustieteiden tutkimuslaitos. Julkaisuja no 254.

National Association of Schoolmasters, Ed. (1976) Stress in schools. Hemel Hempstead: National Association of Schoolmasters.

National Education Association, Ed. (1938) Fit to teach: A study of the health problems of teachers. Washington, D.C.: NEA, Department of Classroom Teachers.

National Education Association, Ed. (1939) The teacher looks at teacher load. NEA Research Bulletin, 17(5).

National Education Association, Ed. (1951) Teaching load in 1950. NEA Research Bulletin, 29(1), 3-50.

National Education Association, Ed. (1967) The American school teacher 1965-66. Research Reports, R-4, 3-57.

National Education Association, Ed. (1968) Teacher's problems. NEA Research Bulletin, 46(4), 116-117.

Niinistö, K. (1980) Koulutusinnovaation edellytykset ja toteuttaminen. Turun yliopiston julkaisuja, sarja C, No 26.

Nikkanen, P. (1978) Psyykkinen rasitus ja työtyytyvyys opettajan ammatissa. Tampereen yliopiston kasvatustieteen laitos, pro gradu -tutkielma.

Noonan, R. (1981a) A manual for PLS program, January 1981 version. University of Stockholm, Institute of International Education. Working Paper Series No. 29.

Noonan, R. (1981b) School environments and school outcomes:

An empirical study using the IEA data. In: M. Niessen & J. Peschar (Eds.), Comparative research in education 1975-1980. Budapest: Akademiai Kiado.

Noonan, R. & Wold, H. (1977) NIPALS path modelling with latent variables: Analysing school survey data using nonlinear iterative partial least squares. Scandinavian Journal of Educational Research, 21(1), 33-61.

Noonan, R. & Wold, H. (1980) PLS path modelling with latent variables: Analysing school survey data using partial least squares - Part II. Scandinavian Journal of Educational Research, 24(1), 1-24.

Nummenmaa, T., Pitkänen, P. & Ruoppila, I. (1962) Koulun uudistamista koskevista erimielisyyksistä ja pedagogisesta tutkimustoiminnasta. Kasvatus ja koulu, 48(6), 331-361.

Nyman, K. & Raitasalo, R. (1978) Työstä poissaolot ja niihin vaikuttavat tekijät Suomessa. Kansaneläkelaitoksen julkaisuja A:14. Helsinki: Sosiaaliturvan tutkimuslaitos.

Panhelainen, M. & Malin, A. (1981) Korkeakoulutukseen hakeutuminen humanistisella ja luonnontieteellisellä koulutusalalla. Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos. Selosteita ja tiedotteita 175.

Peck, L. (1936) A study of the adjustment difficulties of a group of women teachers. Journal of Educational Psychology, 27, 401-416.

Pekkanen, J. (1973) Opettajien työaika. Helsinki: Opettajien Yhteisjärjestö.

Pellegrin, R.J. (1976) Schools as working settings. Ch. 8 (pp. 343-374) in: R. Dubin (Ed.), Handbook of work, organization, and society. Chicago: Rand McNally.

Peltonen, M. (1969) Oppikoulun opettajien työmäärä. Tampereen yliopiston kasvatustieteen laitos.

Phillips, B.E. & Lee, M. (1980) The changing role of the American teacher: Current and future sources of stress. Ch. 4 (Pp. 93-111) in: C.L. Cooper & J. Marshall (Eds.), White collar and professional stress. Chichester: John Wiley & Sons.

Phillips, M. (1932) Some problems of adjustment in the early years of a teacher´s life. British Journal of Educational Psychology, 2, 237-256.

Powell, M. & Ferraro, C.D. (1960) Sources of tension in married and single women teachers of different ages.

Journal of Educational Psychology, 51(2), 92-101.

Pratt, J. (1978) Perceived stress among teachers: The effecs of age and background of children taught. Educational Review, 30(1), 3-14.

Price, L.W. (1970) Organizational stress and job satisfaction of public high school teachers. (Doctoral dissertation, Stanford University). Dissertation Abstracts International, 1971, 31(11-A), 5727-5728.

Randall, H.B. (1951) Health is for teachers too. National Education Association Journal, 40, 467-468.

Ridley, C.A. (1973) Exploring the impact of work satisfaction and involvement on marital interaction when both partners are employed. Journal of Marriage and the Family, 35(2), 229-237.

Rudd, W.G.A. & Wiseman, S. (1962) Sources of dissatisfaction among a group of teachers. British Journal of Educational Psychology, 32, 275-291.

Runkel, P.J. & McGrath, J.E. (1972) Research on human behavior. New York: Holt, Rinehart & Winston.

Ruohotie, P. (1978) Opettajien työmotivaatio. Teoreettinen viitekehys opettajien työmotivaation tutkimiseksi. Tampereen yliopiston kasvatustieteen laitos. Julkaisusarja A, Tutkimusraportti N:o 13.

Ruohotie, P. (1980) Opettajien työmotivaatio. Tutkimus peruskoulun yläasteen opettajien työmotivaatiosta ja siihen liittyvistä tekijöistä. Tampereen yliopiston kasvatustieteen laitos. Julkaisusarja A, Tutkimusraportti 17.

Sauli, H. (1979) Occupational mortality in 1971-1975. Central Statistical Office of Finland, Studies No. 54. Helsinki: Valtion painatuskeskus.

Schroeder, J.H. (1977) The relationship between teacher perception of managerial behavior, teacher satisfaction, and teacher absenteeism. (Doctoral dissertation, University of New Orleans). Dissertation Abstracts International, 1978, 38(8-A), 4495-4496.

Seeman, M. (1961) On the meaning of alienation. American Sociological Review, 26, 753-758.

Selye, H. (1956) The stress of life. New York: McGraw-Hill.

Simpson, J. (1962) Sickness absence in teachers. British Journal of Industrial Medicine, 19, 110-115.

Simpson, J. (1976) Stress, sickness absence and teachers. Ch. 2 (pp. 11-17) in: National Association of Schoolmasters (Ed.), Stress in schools. Hemel Hempstead: National Association of Schoolmasters.

Slick, G.H.Jr. (1974) The relationship of organizational climate factors which influence morale and other selected variables to absence frequency. (Doctoral dissertation, Temple University). Dissertation Abstracts International, 1975, 35(8-A), 4947.

Solomon, J.C. (1960) Neuroses of school teachers: A colloquy. Mental Hygiene, 44(1), 79-90.

Taylor, P.H. (1968) Teachers´ role conflicts - II: English infant and junior schools. International Journal of Educational Sciences, 2(3), 167-173.

Telemäki, H. (1973) Koulujärjestelmäkeskustelu opettajain ammattilehdissä vuosina 1946-1968. Tampereen yliopiston kasvatustieteen laitos. Julkaisusarja A, Tutkimusraportti 5.

Tuomola, U. (1969) Kansakouluntarkastajaan kohdistuvista rooliodotuksista. Jyväskylä Studies in Education, Psychology and Social Research, 18.

Vaherva, T. (1974) Koulutustuotokset peruskoulun ala-asteella yhteisömuuttujien selittäminä. Jyväskylä Studies in Education, Psychology and Social Research, 27.

Vernberg, E.M. & Medway, F.J. (1981) Teacher and parent perceptions of school problems. American Educational Research Journal, 18(1), 29-37.

Vestre, S.E. (1976) Laerer i 70-årenes skole (Vår skole nr 1-2, 1976). Oslo: Norsk Laererlag.

Viljanen, E. (1970) Pohjakoulutustaso ja kansakoulunopettajan kehitysympäristöjen muodostuminen. Jyväskylä Studies in Education, Psychology and Social Research, 22.

Wahlund, I. & Nerell, G. (1976) Tjänstemännens arbetsmiljöer: Arbete, hälsa och välbefinnande. Stockholm: Tjänstemännens Centralorganisation TCO.

Wandt, E. (1952) The measurement of teachers´ attitudes toward groups contacted in the school. Journal of Educational Research, 46, 113-122.

Wilson, B.R. (1962) The teacher´s role: A sociological analysis. British Journal of Sociology, 13(1), 15-32.

Wold, H. (1975) Path models with latent variables: The NIPALS approach. Pp. 307-357 in: H.M. Blalock, Jr.

et al. (Eds.), Quantitative sociology. New York: Academic Press.

Wold, H. (1980) Model construction and evaluation when theoretical knowledge is scarce. Pp. 47-74 in: J. Kmenta & J. Ramsey (Eds.), Model evaluation in econometrics. New York: Academic Press.

Young, M. & Willmott, P. (1973) The symmetrical family. A study of work and leisure in the London region. London: Routledge & Kegan Paul.

APPENDIX 1. A translation of the questionnaire with relative marginal frequencies or means and standard deviations of the items for the total sample, N = 1949

Dear Member of the OAJ,

Please find enclosed a questionnaire involving questions on some aspects of a teacher´s work. This questionnaire is part of the joint Nordic research project, the Nordstress. The aim of the project is to inquire into teachers´ working conditions, prerequisites and opportunities, work load and strain as well as their effects on health and well-being.

The research work in Finland is carried out by the University of Jyväskylä where the person in charge is Mr Raimo Mäkinen, Ed.Lic. The OAJ has taken an active interest in planning the research.

Despite the great length of the questionnaire, we hope that you can spare the time and trouble to go through the whole questionnaire and answer all questions carefully. We also hope that you will return the completed form as soon as possible, preferably within a week after the arrival of the questionnaire. The easiest way of returning the questionnaire is to use the prepaid return envelope enclosed.

The OAJ feels that the present research project is of great importance when inquiring into teachers´ work strain. It is the wish of the OAJ that as many as possible of those involved would participate in carrying out the research in order to obtain sufficient representativeness. This may prove essential later when trying to apply the results for the greatest possible benefit of teachers and their work.

The Teachers´ Trade Union OAJ

Voitto Ranne
Chairman

Alpo Aunola
Senior Research Assistant

HOW TO ANSWER THE QUESTIONS

Most questions are provided with numbered response alternatives, and you are asked to put a circle around the number of the appropriate or the closest to the appropriate alternative. Some of the questions require written answers.

A. Personal background information

			%
1. Sex	1	male	37
	2	female	63
			Mean S.D.
2. Age	_____	years	39.9 8.7

			%
3. Marital status			
	1	married	81
	2	widowed, divorced or separated	5
	3	single	14

4. Number of children living at home. Write down the number of your children in each age group or circle the first alternative.

		%
1	no children living at home	30
		Mean S.D.
____	children of age 0-2	.2 .4
____	children of age 3-6	.3 .6
____	children of age 7-12	.4 .7
____	children of age 13-16	.3 .6
____	children over 16	.4 .7

5. How have you solved the problem of childrens´ day-care?

		%
1	no children living at home	30
2	children manage without care	36
3	spouse or some other in the family looks after children	10
4	domestic helper looks after children	8
5	children are in day care in another family	14
6	children are in nursery/kindergarten	3

6. How satisfactory do you find your children´s day-care?

		%
1	no children needing day care	58
2	no difficulties in day care	33
3	somewhat unsatisfactory	9
4	very unsatisfactory	1

7. What percentage of the income you get from teaching accounts for the total income of your family?

		%
1	100-80 %	30
2	79-60 %	16
3	59-40 %	44
4	39-20 %	9
5	less than 20 %	1

8. What kind of education do you have? State your highest degree/certificate.

		%
1	MA, equivalent or higher degree	20
2	BA, or equivalent	18
3	class teacher, elementary school teacher	45
4	special school teacher	4

5	subject teacher	10
6	some other; please specify _____	2

9. Does your education include pedagogical or didactic studies?

		%
1	none at all	3
2	separate teacher training	7
3	teacher training plus other pedagogical studies	26
4	pedagogical studies included in teacher education	26
5	pedagogical studies included in teacher education plus other pedagogical studies	37

10. Have you got qualifications in some other field than teaching?

		%
1	no	89
2	yes; please specify _____	11

11. Have you worked for at least twelve months in total in some other field than teaching? (Summer jobs or military service are not included here.)

		%
1	no	80
2	yes, in total for ____ years	20

12. In what year did you start your work as a teacher?

	Mean	S.D.
Answer: in 19__	1962.3	8.9

13. For how long have you been working in your present school? (Leaves of absence of more than six months are not included here.)

	Mean	S.D.
Answer: for ____ years	9.6	7.8

14. In how many schools did you teach before your present school?

	Mean	S.D.
Answer: in ____ schools	2.4	2.0

B. Information about community and school

15. Number of inhabitants in the community:

		%
1	less than 3000	5
2	3000 - 5000	12
3	5000 - 10 000	22
4	10 000 - 30 000	30
5	30 000 - 60 000	9
6	60 000 - 100 000	8
7	100 000 - 200 000	9
8	more than 200 000	5

16. Language distribution in the community:

		%
1	(almost) exclusively Finnish speaking	81
2	majority Finnish speaking, less than 20 % Swedish speaking	14

3	majority Finnish speaking, 20-40 % Swedish speaking	3
4	about equal, both groups 40-60 %	1
5	majority Swedish speaking, 20-40 % Finnish speaking	1
6	majority Swedish speaking, less than 20 % Finnish speaking	0
7	(almost) exclusively Swedish speaking	0

17. What is the population development and migration like in the community?

		%
1	population decrease, negative net migration	27
2	stable population, little migration	33
3	population rather stable, but a great deal of migration	16
4	population increase, positive net migration	24

18. What is the level of unemployment at present in the community? (Have a guess if you have some kind of an idea.)

		%
1	less than 2 %	3
2	2 - 6 %	27
3	6 - 10 %	38
4	10 - 14 %	13
5	14 - 18 %	5
6	more than 18 %	3
7	I do not know, and I dare not guess.	11

19. In what year did the transition to the comprehensive school system take place in your community?

		%
1	before 1972 (one of the communities carrying out the experiments)	7
2	in 1972	11
3	in 1973	11
4	in 1974	19
5	in 1975	20
6	in 1976	20
7	in 1977	12

20. What is your estimate of the number of the following occupations among the inhabitants of your school district / the area surrounding your school? (Circle one alternative on each item a to e.)

	none (%)	less than 20% (%)	around 20-40% (%)	more than 40% (%)
a) small farmers, forest workers, fishermen	1 (29)	2 (48)	3 (16)	4 (7)
b) farmers, agricultural entrepreneurs	1 (24)	2 (35)	3 (24)	4 (17)
c) unskilled workers	1 (2)	2 (65)	3 (27)	4 (6)
d) skilled workers, office employees, industrial super-				

visors, small-scale enterprisers	1	(1)	2	(35)	3	(41)	4 (22)
e) upper civil servants, business executives, university graduates, independent entrepreneurs	1	(7)	2	(68)	3	(20)	4 (4)

21. Which of the following best characterizes the type of housing in your school district?

		%
1	scattered houses	28
2	relatively dense area with one-family houses	11
3	built-up area with one-family houses with some blocks of flats	25
4	built-up area with equal number of one-family houses and blocks of flats	18
5	dense area with mostly blocks of flats	12
6	dense area with blocks of flats	5

22. What is the number of pupils in your school? (Here and in the following questions 'your school' refers to the administrative unit - eg an upper comprehensive school with a principal of its own - where you do most of your teaching.)

	Mean	S.D.
Answer: (approximately) _____ pupils	329	249

24. What different school levels are located in your school either in the same building or on the same lot?

		%
1	only the lower level	47
2	only the upper level	8
3	lower and upper levels	11
4	only the upper secondary school	1
5	upper level and upper secondary school	25
6	lower and upper levels plus upper secondary school	8

25. How high has the rate of turnover among the teachers of your school been during the last three years?

		%
1	not a single new teacher enrolled	18
2	max one of five are new	54
3	about 20 to 30 per cent are new	18
4	more than one third enrolled during the last three years	9

26. How old is the school building where you do most of your teaching (since the last major renovation)?

		%
1	less than 5 years	12
2	5 to 10 years	17
3	10 to 20 years	36
4	20 to 30 years	22
5	over 30 years	13

27. You will find a list of various rooms and other facilities below; you are asked to answer two questions here: A. Is there a particular room/facility mentioned below in your school? and B. How satisfactory is the present situation as regards the number,

size, quality, location, etc. of the rooms and other facilities listed below? Be sure that you circle two numbers for each item.

	A. Is/are there any? yes (%)	no (%)	B. Satisfactoriness: satisfactory (%)	unsatisfactory (%)
a) classrooms	1 (100)	2 (0)	1 (80)	2 (20)
b) rooms for small-group instruction	1 (44)	2 (56)	1 (35)	2 (65)
c) special rooms (auditorium, special subject rooms)	1 (86)	2 (14)	1 (65)	2 (35)
d) library room	1 (58)	2 (42)	1 (44)	2 (56)
e) study room for teachers	1 (30)	2 (70)	1 (28)	2 (72)
f) internal telephone	1 (27)	2 (73)	1 (47)	2 (53)
g) telephone	1 (95)	2 (5)	1 (79)	2 (21)
h) teachers' room	1 (86)	2 (14)	1 (61)	2 (39)
i) teachers' room for smokers	1 (25)	2 (75)	1 (56)	2 (44)
j) teachers' room for non-smokers	1 (63)	2 (37)	1 (63)	2 (37)
k) locker room for teachers	1 (17)	2 (83)	1 (24)	2 (76)
l) discussion/ consultation room	1 (17)	2 (83)	1 (24)	2 (76)
m) meeting room	1 (13)	2 (87)	1 (34)	2 (66)
n) dining hall for teachers	1 (4)	2 (96)	1 (33)	2 (67)
o) lavatories for teachers	1 (83)	2 (17)	1 (35)	2 (65)
p) lavatories for pupils	1 (86)	2 (14)	1 (54)	2 (46)
q) dining hall for pupils	1 (70)	2 (30)	1 (61)	2 (39)
r) recreation facilities for pupils' use during breaks	1 (15)	2 (85)	1 (20)	2 (80)

28. Do the following factors cause harm or inconvenience in your work?

	no (%)	sometimes (%)	yes (%)
a) noise, inadequate sound insulation	1 (3)	2 (49)	3 (22)
b) inadequate lighting	1 (57)	2 (27)	3 (16)
c) inadequate air conditioning	1 (36)	2 (37)	3 (28)
d) temperature (too high, too low, draught)	1 (24)	2 (44)	3 (31)
e) dirt, oil, dust	1 (69)	2 (23)	3 (8)
f) harmful chemicals	1 (90)	2 (8)	3 (2)
g) inconvenient working postures due to inadequate furniture, machines and other equipment	1 (71)	2 (23)	3 (6)
h) other external working conditions	1 (42)	2 (43)	3 (15)

29. What is the language of instruction in your school? %

1 Finnish 99

2 Swedish (or some other; please specify _____ 1

30. Are there any among your pupils who have difficulties in using the language of instruction (some other language spoken at home, linguistically deprived returners from Sweden)?

%

1	none	80
2	a few sporadic cases	19
3	less than 15 % of the pupils	1
4	15 - 30 % of the pupils	0
5	more than 30 % of the pupils	0

31. To what extent do the teachers belonging to the different language groups cooperate in your community?

		%
1	only one language spoken in the community, question does not concern me	83
2	bilingual community, little or no cooperation between the groups	15
3	bilingual community, large or rather large amount of cooperation between two groups	2

32. To what extent does the bilingualism in the community hamper your cooperation with the school authorities in your community?

		%
1	only one language spoken in the community, question does not concern me	83
2	bilingual community, but little or no difficulties with authorities	16
3	bilingual community and considerable or rather considerable difficulties with authorities	1

33. To what extent does the bilingualism in the community hamper your cooperation with the student welfare personnel?

		%
1	only one language spoken in the community, question does not concern me	83
2	bilingual community, but little or no difficulties with student welfare personnel	16
3	bilingual community and considerable or rather considerable difficulties with student welfare personnel	0

34. To what extent is your cooperation with the provincial or state school authorities hampered by the fact that your language of instruction is other than Finnish (as regards correspondence, instructions, handbooks, in-service training, teaching materials)?

		%
1	question does not concern me, my language of instruction is Finnish	99
2	language of instruction other than Finnish, but little or no difficulties	1
3	language of instruction other than Finnish and considerable or rather considerable difficulties	0

C. Your own work as a teacher

35. What is your present post?

		%
1	class teacher	48
2	subject teacher	12
3	special school teacher	5
4	assistant master/mistress in comprehensive school	19
5	assistant master/mistress in upper secondary school	10
6	supply teacher	4
7	some other; please specify_____	2

36. What teaching post did you hold before the school reform?

		%
1	no teaching post before the reform	10
2	elementary school teacher in forms 1-6	42
3	elementary school teacher in forms 7-9	8
4	special school teacher	3
5	teacher in communal school	7
6	teacher in private secondary school	17
7	teacher in state secondary school	8
8	some other teacher; please specify _____	4

37. Do the following factors threaten the continuity of your employment?

	absolutely not (%)	possibly threatens (%)	seriously threatens (%)
a) temporary nature of employment (eg. substitute teacher)	1 (85)	2 (6)	3 (9)
b) decrease in the number of pupils in your school	1 (47)	2 (37)	3 (16)
c) decrease in the number of hours in the subjects you teach	1 (57)	2 (31)	3 (12)
d) structural changes in public education	1 (57)	2 (35)	3 (8)

38. Do you act as a form master/mistress or are you a class teacher?

		%
1	no	18
2	in forms 1-3	24
3	in forms 4-6	27
4	in forms 7-9	22
5	in upper secondary school	9

39. Do you give instruction in teaching groups consisting of pupils from more than one form?

		%
1	no	74
2	yes, forms _____	26

40. How many pupils are there in the class / mixed age class where you act as a form master / class teacher?

1 question does not concern me, I have no 'class of my own'

2 ____ pupils

41. How many hours per week do you give instruction to the class/mixed age class where you act as a form master or class teacher?

		%
1	I have no 'class of my own'	20
2	max 2 hours per week or to some of the pupils not at all	9
3	3-6 hours per week	18
4	7-10 hours per week	3
5	11-15 hours per week	3
6	more than 15 hours per week	47

42. How many teachers give instruction to the class/mixed age class where you act as a form master or class teacher?

1 I have no 'class of my own'
2 ____ teachers (including myself)

43. Do you work as a headmaster or a principal?

		%
1	no	84
2	yes, of lower level	13
3	yes, of upper level	2
4	yes, in a special school	1
5	yes, in upper secondary school	1

44. How many teachers work in the school where you work as a headmaster/principal?

1 question does not concern me
2 ____ teachers (including myself)

45. At what level / in what forms do you do most of your teaching?

		%
1	at lower level, forms 1-3	24
2	at lower level, forms 4-6	30
3	at upper level, forms 7-9	34
4	in upper secondary school	12

46. Do you give instruction to any other form group in addition to the one you mentioned above?

		%
1	no	52
2	yes; please specify _____	48

47. To which subject group listed below do the largest number of your teaching hours belong? Circle only one alternative.

		%
1	class teacher - several subject groups	49
2	mother tongue	7
3	other languages	13
4	mathematical subjects (mathematics, chemistry, physics)	8
5	modern subjects	9
6	practical and aesthetic subjects	13

48. In what individual subjects do you have most of your teaching hours this term? Mention the three subjects in which you have the first, second and third largest number of hours in respective order.

1._____ 2._____ 3._____

49. How many subjects do you teach this term?

	Mean	S.D.
Answer: ____ different subjects	5.5	3.9

50. How many different courses do you teach this term?

	Mean	S.D.
Answer: ____ different courses	6.4	5.0

51. To how many different classes/teaching groups do you give instruction this term?

	Mean	S.D.
Answer: ____ teaching groups	6.0	4.1

52. To how many pupils (give an approximate number) do you give instruction this term?

	Mean	S.D.
Answer: to ____ pupils	132	109

53. How big is a) the biggest, b) the smallest teaching group you have this term?

	Mean	S.D.
Answer: biggest group ____ pupils	26.8	9.1
smallest group ____ pupils	14.4	7.3

54. How many class rooms/other teaching facilities do you use during a regular school week?

	Mean	S.D.
Answer: ____ classrooms, sports grounds	3.7	2.5

55. In how many different schools do you teach during a regular school week?

	Mean	S.D.
Answer: in ____ schools	1.2	.8

56. Is your present schedule unsatisfactory if evaluated from the following points of view?

	to a great extent	(%)	to some extent	(%)	not at all	(%)
a) prevents integrated flow and progress of teaching/learning in my classes	1	(3)	2	(27)	3	(70)
b) prevents proper concentration on the subjects on my part	1	(7)	2	(26)	3	(67)
c) prevents me from teaching subjects I would like to teach	1	(6)	2	(18)	3	(77)
d) prevents me from getting a proper contact with my pupils and learning to know them	1	(5)	2	(25)	3	(70)
e) prevents collaboration with other teachers	1	(4)	2	(21)	3	(75)
f) is inconvenient as to the daily organization of work	1	(8)	2	(31)	3	(60)
g) is inconvenient on some other grounds	1	(4)	2	(29)	3	(66)

57. How many hours during a regular school week have you spent on

different sectors of work this year? (Give your rough estimates.)

		Mean	S.D.
a) statutory teaching hours	___ hours per week	20.7	3.4
b) additional teaching hours	___ hours per week	3.6	2.9
c) preparation of instruction, marking papers and examinations	___ hours per week	9.3	6.0
d) extensive planning and development of instruction (planning sessions, getting familiar with curriculums, teaching methods and books, extra studies related to teaching)	___ hours per week	2.3	2.3
e) pupil welfare work (consultation with individual pupils, contacts with parents, other teachers, pupil welfare personnel and other authorities	___ hours per week	1.5	1.7
f) administrative routine and paper work	___ hours per week	1.5	3.2
in total	___ hours per week	38.9	8.4

58. What is your estimate of the distribution of the type of work under points c to f above (that is the work done outside the actual teaching time) in the following sectors?

		Mean	S.D.
a) this type of work at school or somewhere else outside the home	___ hours per week	5.1	6.8
b) this type of work at home in the evenings during weekdays (Monday to Friday, in total)	___ hours per week	7.1	5.4
c) this type of work at home during weekends (Saturday and Sunday, in total)	___ hours per week	3.0	3.0

59. How many empty spaces do you have in your schedule for a regular school week, ie. hours in the middle of a school day without teaching?

	Mean	S.D.
Answer: ___ hours per week	1.3	1.9

60. How much time do you spend daily on walking/travelling between home and school? (Consider also the possible transportation of your children here.)

		%
1	less than a half an hour per day	50
2	0.5 - 1 hour per day	34
3	1 - 1.5 hours per day	11
4	1.5 - 2 hours per day	4
5	2 - 3 hours per day	1
6	more than 3 hours per day	1

61. How much free time during weekdays have you left during regular school work, if leaving out the time spent on work, travel to work and back, household chores, daily rest (sleep) and other necessary duties?

Mean S.D.

Answer: ____ hours per day 2.9 1.9

How much free time have you on Saturdays and Sundays?

Answer: ____ hours per day 7.8 3.7

62. To what extent is the instruction you give based on the following learning/teaching materials and sources (consider all your teaching hours here)?

	almost always (%)	often (%)	sometimes (%)	seldom (%)	never (%)
a) textbooks and other published material	1 (49)	2 (40)	3 (5)	4 (5)	5 (1)
b) material you have compiled and prepared yourself	1 (7)	2 (33)	3 (46)	4 (14)	5 (0)
c) material compiled and prepared by teachers in your school	1 (0)	2 (4)	3 (25)	4 (48)	5 (23)
d) material compiled and prepared by pupils and the teacher	1 (0)	2 (2)	3 (25)	4 (51)	5 (22)
e) material compiled and prepared by pupils	1 (0)	2 (1)	3 (16)	4 (50)	5 (32)
f) no special teaching/ learning material; instruction is based on spontaneous discussion etc.	1 (0)	2 (6)	3 (24)	4 (42)	5 (28)

63. To what extent do you think the following factors determine the planning and realization of your daily work?

	determines too little (%)	determines adequately (%)	determines too much (%)
a) curriculums	1 (10)	2 (74)	3 (15)
b) textbooks and other teaching/ learning materials	1 (9)	2 (73)	3 (18)
c) schedule	1 (2)	2 (76)	3 (22)
d) instructions given by school authorities	1 (19)	2 (65)	3 (16)
e) teacher collaboration (teachers' meetings, teacher with local supervisory functions, provincial educational advisers)	1 (47)	2 (51)	3 (2)
f) expectations from people outside the school	1 (28)	2 (62)	3 (10)

64. How adequate is the availability of the teaching/learning materials, equipment and services listed below?

	adequate (%)	inadequate (%)
a) textbooks, other published materials	1 (82)	2 (18)
b) handbooks and reference books	1 (54)	2 (46)
c) copying equipment	1 (81)	2 (19)
d) technical equipment (machines, tools)	1 (62)	2 (36)
e) audio-visual facilities	1 (64)	2 (36)
f) minor articles for daily use	1 (64)	2 (36)
g) musical instruments, sports equipment	1 (60)	2 (40)
h) laboratory equipment, collections		

and other articles for illustration	1	(43)	2	(57)
i) typing and duplication services	1	(52)	2	(48)

D. Contacts and social relations

65. Are there any meetings held at your school, especially called to improve teacher collaboration and mutual planning of school work (that is other meetings than required by the collective agreement?

		%
1	yes, there is a meeting once a week or more	4
2	yes, there is a meeting twice a month	6
3	yes, there is a meeting once a month	20
4	yes, there is a meeting once or twice a term	36
5	no meetings, eventual collaboration and planning takes place in informal discussions	39

66. How adequate in your opinion is the number of the following types of meetings in your present school?

	too many		adequate		not enough	
		(%)		(%)		(%)
a) meetings of teachers teaching the same forms	1	(1)	2	(57)	3	(43)
b) meetings of teachers teaching the same classes	1	(0)	2	(57)	3	(43)
c) meetings of teachers teaching the same subjects/subject groups	1	(0)	2	(57)	3	(43)
d) meetings of all teachers in school	1	(3)	2	(77)	3	(20)
e) meetings with the student welfare and other personnel	1	(1)	2	(47)	3	(52)

67. How often do you have informal contacts and discussions (with one or more of your colleagues) concerning the following aspects of work?

	at least once a week		2-3 times a month		once a month		less often		never	
		(%)		(%)		(%)		(%)		(%)
a) planning and organizing the instruction	1	(52)	2	(16)	3	(12)	4	(18)	5	(2)
b) exchanging teaching/ learning materials, stencils, ideas	1	(33)	2	(18)	3	(14)	4	(27)	5	(7)
c) designing and marking exams	1	(8)	2	(11)	3	(14)	4	(38)	5	(30)
d) matters concerning individual pupils	1	(60)	2	(18)	3	(9)	4	(12)	5	(1)
e) matters concerning individual classes	1	(50)	2	(17)	3	(12)	4	(18)	5	(3)
f) matters concerning pupils´ parents	1	(17)	2	(17)	3	(14)	4	(43)	5	(9)
g) matters concerning										

inter-teacher relations	1	(24)	2	(11)	3	(11)	4	(41)	5 (14)
h) matters concerning the headmaster/principal	1	(23)	2	(11)	3	(10)	4	(40)	5 (16)
i) other matters, please specify _____	1	(10)	2	(4)	3	(3)	4	(5)	5 (79)

68. How sufficient is the time and the opportunities to discuss the matters mentioned above with your colleagues?

		%
1	absolutely too little time	20
2	somewhat too little time	30
3	enough time	46
4	more than enough time	3

69. How satisfactory and adequate do you think is the amount of say you have in the following aspects of your work situation?

	adequate amount of say (%)	too little a say (%)
a) schedule	1 (63)	2 (37)
b) planning of teaching/instruction	1 (88)	2 (12)
c) purchase of teaching materials and equipment	1 (68)	2 (32)
d) allocation of material recourses within the school	1 (73)	2 (27)
e) use of school rooms	1 (71)	2 (29)
f) welfare care of pupils	1 (63)	2 (37)
g) decisions concerning personnel and teacher allocation	1 (72)	2 (28)
h) in-service training for teachers	1 (53)	2 (47)
i) administrative and office routines	1 (75)	2 (25)

70. How well do the following statements describe the relations between the pupils you teach?

	describes most of my pupils (%)	describes many of my pupils (%)	describes some of my pupils (%)	describes a few or none (%)
a) mutual support and co-operation in school work	1 (21)	2 (47)	3 (30)	4 (3)
b) individual competition in school work	1 (6)	2 (35)	3 (51)	4 (8)
c) quarrels between groups and between individual pupils	1 (2)	2 (12)	3 (51)	4 (35)

71. How well do the following statements describe your pupils' behaviour and attitudes toward teaching?

	describes most of my pupils (%)	describes many of my pupils (%)	describes some of my pupils (%)	describes a few or none (%)
a) pupils are obedient and attentative	1 (41)	2 (45)	3 (13)	4 (2)
b) pupils are passive and show no initiative	1 (4)	2 (22)	3 (53)	4 (20)

c) pupils are active and cooperative	1	(27)	2	(47)	3	(24)	4	(3)
d) pupils are restless and unable to concentrate	1	(3)	2	(15)	3	(52)	4	(30)

72. To what degree do your pupils - those at your main level of teaching - show the following forms of problem behaviour?

	not at all		a few sporadic cases per year		max 10 % of my pupils		more than 10 % of my pupils	
		(%)		(%)		(%)		(%)
a) use of alcohol	1	(58)	2	(16)	3	(18)	4	(8)
b) use of other intoxicants (thinner, pills etc.)	1	(81)	2	(18)	3	(2)	4	(0)
c) truancy or school phobia	1	(32)	2	(32)	3	(30)	4	(6)
d) violence	1	(31)	2	(44)	3	(21)	4	(4)
e) pilfering or stealing	1	(45)	2	(43)	3	(11)	4	(1)
f) damaging school property	1	(33)	2	(42)	3	(21)	4	(4)

73. In how many cases during the present school year have you appealed to professionals for assistance (remedial instruction, speech therapist, psychologist, child guidance clinic)?

	Mean	S.D.
Answer: in ___ cases due to learning difficulties	4.3	3.6
in ___ cases due to psychic and behaviour disturbances	1.0	1.9
in ___ cases due to other reasons	0.9	2.0

74. How well do the following statements describe the relations between teachers in your school?

	describes most teachers		describes many teachers		describes some teachers		describes a few or none	
		(%)		(%)		(%)		(%)
a) isolation, everybody solves his/her own problems	1	(7)	2	(15)	3	(33)	4	(45)
b) open disagreement and conflict	1	(2)	2	(3)	3	(29)	4	(66)
c) friendly but rather superficial relations	1	(29)	2	(35)	3	(22)	4	(14)
d) mutual support and help in difficulties, mutual responsibility	1	(25)	2	(28)	3	(35)	4	(12)
e) open and fruitful cooperation	1	(28)	2	(28)	3	(32)	4	(11)

75. How well do the following statements describe your own contacts with your pupils´ parents?

	describes most parents		describes many parents		describes some parents		describes a few or none	
		(%)		(%)		(%)		(%)
a) formal letter contacts	1	(28)	2	(18)	3	(28)	4	(26)

b) mutual support and help	1	(16)	2	(25)	3	(37)	4	(22)
c) conflicts between school and parents	1	(0)	2	(1)	3	(16)	4	(82)

76. How many of your pupils' parents participate in the following forms of school-home cooperation?

		less than 10 % (%)		about 10 to 20 % (%)		about 20 to 50 % (%)		more than 50 % (%)
a) parent evenings	1	(7)	2	(16)	3	(36)	4	(41)
b) consultation hours for parents	1	(67)	2	(10)	3	(10)	4	(13)
c) class and school parties/ festivals	1	(27)	2	(16)	3	(25)	4	(32)

77. How many of your pupils parents have you practically never had contact with?

		%
1	less than 20 %	43
2	20 - 50 %	18
3	50 - 80 %	17
4	more than 80 %	23

78. How adequately do the following statements describe the interaction between the headmaster and teachers in your school?

		describes mostly (%)		describes often (%)		describes sometimes (%)		describes never (%)
a) decisions are made by the headmaster without consulting teachers	1	(8)	2	(17)	3	(50)	4	(25)
b) the headmaster is passive	1	(5)	2	(10)	3	(34)	4	(51)
g) good cooperation and warm relations	1	(43)	2	(32)	3	(21)	4	(5)
d) the headmaster controls and looks after the work of the staff	1	(16)	2	(27)	3	(45)	4	(12)

79. How much do you receive support and help needed for a succesful performance in your work from the sources listed below?

		very much (%)		quite a lot (%)		rather little (%)		not at all (%)
a) other teachers of your school	1	(25)	2	(43)	3	(29)	4	(3)
b) headmaster	1	(24)	2	(41)	3	(29)	4	(7)
c) local (communal) school authorities	1	(4)	2	(20)	3	(53)	4	(23)
d) provincial school authorities	1	(2)	2	(8)	3	(55)	4	(36)
e) parents	1	(4)	2	(22)	3	(56)	4	(18)
f) pupils welfare and health service personnel	1	(8)	2	(33)	3	(48)	4	(11)
g) office assistant of your school	1	(11)	2	(26)	3	(23)	4	(39)

h) school janitor	1	(13)	2	(30)	3	(34)	4	(23)
i) kitchen staff	1	(10)	2	((27)	3	(40)	4	(22)
j) teacher with local supervisory functions	1	(3)	2	(14)	3	(47)	4	(36)
k) pupils	1	(11)	2	(48)	3	(35)	4	(5)
l) local teacher association	1	(2)	2	(12)	3	(57)	4	(29)
m) central teacher union	1	(1)	2	(10)	3	(59)	4	(30)
n) pedagogic teacher societies	1	(3)	2	(16)	3	(48)	4	(33)
o) Department of Public Education	1	(0)	2	(5)	3	(524)	4	(41)
p) local public opinion	1	(0)	2	(15)	3	(52)	4	(33)
q) mass media	1	(1)	2	(9)	3	(56)	4	(35)

E. Well-being and health

80. How often do you have difficulties in carrying out tasks in the following sectors of your work?

	never (%)	seldom (%)	some-times (%)	often (%)	almost always (%)
a) teaching (content and skill teaching, preparing lessons, marking examinations, giving marks)	5 (8)	4 (49)	3 (35)	2 (7)	1 (1)
b) social education and collaboration with pupils (development of values and morals, supporting pupils with personal problems, discipline)	5 (9)	4 (46)	3 (35)	2 (9)	1 (1)
c) administrative work and routines (teachers' meetings, school council, purchase of materials, miscellaneous paper work, eventual duties as a headmaster)	5 (19)	4 (48)	3 (26)	2 (6)	1 (1)
d) pupil welfare (consulting parents, welfare personnel, social authorities)	5 (19)	4 (53)	3 (24)	2 (3)	1 (0)
e) developing school work and teaching, keeping up to date (professional self-development, educational plan, teaching methods etc.)	5 (9)	4 (38)	3 (38)	2 (13)	1 (2)

81. How sufficient and adequate would you say is your own education in regard to the requirements presented by the following work sectors?

	quite inadeq. (%)	rather inadeq. (%)	rather adeq. (%)	quite adeq. (%)
a) teaching	1 (4)	2 (17)	3 (60)	4 (4)
b) social education and				

collaboration with pupils	1	(13)	2	(39)	3	(41)	4	(8)
c) administrative work and routine	1	(29)	2	(46)	3	(21)	4	(4)
d) pupils' welfare	1	(27)	2	(50)	3	(20)	4	(3)
e) developing school work and teaching, keeping up to date	1	(16)	2	(46)	3	(35)	4	(4)

82. In the following question you are asked to give your own opinion on the prospects of your profession. What is your estimate of the development of the following aspects as re- gards your own future?

	becomes much worse (%)	becomes somewhat worse (%)	remains unchanged (%)	becomes somewhat better (%)	becomes much better (%)
a) level of income, standard of living	1 (14)	2 (45)	3 (35)	4 (6)	5 (0)
b) prestige of the profession	1 (9)	2 (29)	3 (49)	4 (14)	5 (0)
c) employment level	1 (30)	2 (42)	3 (26)	4 (2)	5 (0)
d) school rooms and working facilities	1 (2)	2 (10)	3 (61)	4 (24)	5 (3)
e) learning/teaching materials and equipment	1 (1)	2 (8)	3 (47)	4 (42)	5 (2)
f) behaviour problems of pupils	1 (8)	2 (26)	3 (54)	4 (12)	5 (0)
g) support given by public opinion and those in power	1 (6)	2 (22)	3 (53)	4 (20)	5 (0)
h) amount of work, work strain	1 (14)	2 (43)	3 (38)	4 (5)	5 (0)
i) uncertainty and disagreement in the educational aims	1 (9)	2 (33)	3 (44)	4 (13)	5 (0)
j) attainability of objectives	1 (14)	2 (37)	3 (38)	4 (11)	5 (0)
k) career development, advance in career	1 (10)	2 (10)	3 (77)	4 (3)	5 (0)
l) professional freedom, autonomy in planning and performing daily work	1 (14)	2 (39)	3 (43)	4 (3)	5 (0)
m) possibilities of influencing the development and reforms within public education	1 (21)	2 (32)	3 (42)	4 (6)	5 (0)

83. Do you feel restless or reluctant when going to work?

		%
1	yes, almost always	1
2	yes, often	7
3	yes, sometimes	42
4	no, seldom	41
5	never	9

84. Do you feel restless or reluctant when going to a certain class/certain classes?

		%
1	yeas, almost always	3
2	yes, often	10
3	yes, sometimes	36
4	no, seldom	35
5	never	16

85. Do you in some situations feel that pupils threaten your physical security?

		%
1	yes, almost always	0
2	yes, often	0
3	yes, sometimes	3
4	no, seldom	13
5	never	84

86. Have you difficulties during your free time to detach your thoughts from school work and problems?

		%
1	yes, almost always	6
2	yes, often	23
3	yes, sometimes	36
4	no, seldom	26
5	never	9

87. Are you, after a day's work, so tired that it is difficult to do anything else, eg. be together with your family, meet friends, take up interest in something?

		%
1	yes, almost always	6
2	yes, often	24
3	yes, sometimes	41
4	no, seldom	22
5	never	6

88. Would you like to teach in another school?

		%
1	no	75
2	yes, I have thought about it	19
3	yes, I am planning to apply to another school	3
4	yes, I have applied to another school	2
5	yes, I have got a job in another school	1

89. Would you like to get a job other than teaching?

		%
1	no	63
2	yes, I have thought about it, but I have taken no action	34
3	yes, and I have made some preparations	3
4	yes, and I have already got another job	0

90. Would you choose to become a teacher if given a chance to start over again?

		%
1	definitely yes	13
2	probably yes	41

3 I do not know	18
4 probably not	23
5 definitely not	5

91. How often do you during your leisure time take part in the activities listed below?

	not at all	(%)	some-times	(%)	reg-ularly	(%)
a) voluntary studies, complementary training	1	(17)	2	(71)	3	(11)
b) voluntary activities together with your pupils	1	(42)	2	(49)	3	(9)
c) reading professional books and journals	1	(2)	2	(58)	3	(40)
d) teachers' trade union	1	(34)	2	(48)	3	(18)
e) public debate on school policy	1	(7)	2	(68)	3	(25)
f) informal contacts with pupils and/or their parents	1	(20)	2	(72)	3	(9)
g) informal contacts with colleagues	1	(7)	2	(68)	3	(25)
h) some other activities related to work	1	(32)	2	(52)	3	(16)
i) politics, party organizations	1	(78)	2	(14)	3	(8)
j) other organizations	1	(43)	2	(36)	3	(21)
k) physical exercise, outdoor activities, sports	1	(4)	2	(48)	3	(49)
l) active cultural interests, study circles	1	(30)	2	(48)	3	(22)
m) handicraft, garden, voluntary house hold chores	1	(12)	2	(54)	3	(34)
n) cinema, theatre, concerts	1	(11)	2	(77)	3	(13)
o) entertainment, dancing, restaurants	1	(35)	2	(63)	3	(3)
p) some other interest, hobby or form of recreation	1	(15)	2	(55)	3	(29)

92. The following questions concern some possible perceptions, experiences and opinions you have in respect to your a) work, b) home and family life, and c) your free time and interests. Each question has three parts and you are asked to express your views separately for each life sector mentioned above.

	no, hardly ever	(%)	no, very seldom	(%)	yes, quite often	(%)	yes, very often	(%)
1. Does it seem to you that people undervalue or act hostile toward your person, ideas and actions								
a) in your work and work place?	1	(57)	2	(38)	3	(4)	4	(1)
b) at home and in family life?	1	(64)	2	(29)	3	(5)	4	(1)
c) in your leisure activities?	1	(69)	2	(29)	3	(36)	4	(2)
2. Are you of the opinion that it is best for a person even in extreme difficulties to try and clear things himself expecting no								

help from others

a) in your work and work place?	1	(28)	2	(34)	3	(28)	4	(10)
b) at home and in family life?	1	(43)	2	(31)	3	(18)	4	(7)
c) in your leisure activities?	1	(32)	2	(37)	3	(24)	4	(8)

3. Do you yourself feel that you have until now accomplished nothing valuable, respectable or useful

a) in your work and work place?	1	(23)	2	(46)	3	(26)	4	(5)
b) at home and in family life?	1	(31)	2	(48)	3	(17)	4	(4)
c) in your leisure activities?	1	(29)	2	(47)	3	(19)	4	(5)

4. Do you like to rely on other people when you have difficulties or you must make serious decisions

a) in your work and work place?	4	(12)	3	(40)	2	(40)	1	(8)
b) at home and in family life?	4	(10)	3	(26)	2	(64)	1	(23)
c) in your leisure activities?	4	(13)	3	(41)	2	(37)	1	(9)

5. Do you yourself feel (despite the approval of others) that you have performed and succeeded poorly

a) in your work and work place?	1	(13)	2	(56)	3	(28)	4	(3)
b) at home and in family life?	1	(17)	2	(56)	3	(23)	4	(4)
c) in your leisure activities?	1	(21)	2	(59)	3	(17)	4	(2)

6. Does life seem useless and dull to you

a) in your work and work place?	1	(33)	2	(49)	3	(15)	4	(3)
b) at home and in family life?	1	(39)	2	(45)	3	(14)	4	(2)
c) in your leisure activities?	1	(48)	2	(43)	3	(8)	4	(1)

7. Does it seem that people generally respect you and appreciate your person

a) in your work and work place?	4	(3)	3	(15)	2	(64)	1	(19)
b) at home and in family life?	4	(2)	3	(14)	2	(58)	1	(26)
c) in your leisure activities?	4	(2)	3	(13)	2	(62)	1	(24)

8. Are you in your own opinion able to live and act in a way which gives you ultimate satisfaction and suits you best

a) in your work and work place?	4	(3)	3	(21)	2	(55)	1	(21)
b) at home and in family life?	4	(2)	3	(16)	2	(52)	1	(29)
c) in your leisure activities?	4	(2)	3	(15)	2	(52)	1	(30)

93. What would you say was your general state of health during the past twelve months?

		%
1	quite good	42
2	rather good	32
3	adequate	21
4	rather bad	4
5	quite bad	1

94. How many times during the last twelve months were you absent from work because of your illness?

		%
1	no absences due to illness	56
2	1-3 times	41
3	4-6 times	3
4	7-10 times	0
5	more than 10 times	0

95. What is the total duration of your absences from work due to illness during the past twelve months?

		%
1	not a single day	56
2	less than a week	29
3	1-2 weeks	8
4	2-4 weeks	3
5	more than a month	3

96. How many times during the past twelve months was the reason of your sickness absence something related to your work or working conditions?

		%
1	never	91
2	1-3 times	8
3	4-6 times	0
4	more than 6 times	0

97. Do you feel that you would have needed more sick leaves, but you were not able to take them?

		%
1	yes, considerably more	4
2	yes, somewhat more	23
3	no, I would not have needed	74

98. How often during the past twelve months have you suffered from the following illnesses, symptoms or complaints?

	very often	(%)	quite often	(%)	some-times	(%)	seldom	(%)	never	(%)
a) pain, sharp pain, or pressure in the chest	1	(1)	2	(5)	3	(17)	4	(23)	5	(53)
b) rapid/irregular heart beats, arrhythmia	1	(1)	2	(3)	3	(14)	4	(23)	5	(59)
c) breathlessness, breathing difficulty without physical strain	1	(1)	2	(2)	3	(7)	4	(15)	5	(75)
d) heartburn, pain in the upper stomach	1	(3)	2	(8)	3	(19)	4	(27)	5	(44)
e) gas, stomach ache, diarrhea	1	(4)	2	(11)	3	(25)	4	(37)	5	(22)
f) colds, influenza	1	(1)	2	(6)	3	(32)	4	(48)	5	(13)
g) cough	1	(1)	2	(5)	3	(27)	4	(48)	5	(19)
h) sore throat, hoarseness	1	(3)	2	(9)	3	(24)	4	(42)	5	(22)
i) skin complaint, rash, allergy	1	(5)	2	(7)	3	(10)	4	(17)	5	(61)
j) hearing disturbances	1	(1)	2	(2)	3	(5)	4	(11)	5	(81)
k) aches in the small of										

back	1	(6)	2	(12)	3	(23)	4	(25)	5	(34)
l) aches in the neck, upper back	1	(7)	2	(13)	3	(18)	4	(23)	5	(39)
m) aches in the shoulders, upper arms	1	(5)	2	(10)	3	(18)	4	(23)	5	(44)
n) aches in other limbs	1	(2)	2	(6)	3	(20)	4	(30)	5	(42)
o) muscle aches, myalgia	1	(1)	2	(6)	3	(21)	4	(33)	5	(39)
p) nausea	1	(0)	2	(3)	3	(13)	4	(44)	5	(40)
q) numbness or stiffness in limbs	1	(2)	2	(6)	3	(18)	4	(29)	5	(45)
r) dizziness when standing up quickly	1	(2)	2	(8)	3	(24)	4	(32)	5	(34)
s) dizziness without body movements	1	(0)	2	(2)	3	(8)	4	(17)	5	(73)
t) headache	1	(5)	2	(13)	3	(31)	4	(39)	5	(13)
u) depression	1	(2)	2	(9)	3	(34)	4	(37)	5	(18)
v) insomnia	1	(2)	2	(7)	3	(21)	4	(36)	5	(34)
x) tiredness, fatigue	1	(8)	2	(27)	3	(38)	4	(22)	5	(5)
y) nervousness, restlessness	1	(2)	2	(10)	3	(28)	4	(37)	5	(23)

99. Have you during the past twelve months suffered from the following illnesses?

	yes		no	
		(%)		(%)
a) asthma	1	(1)	2	(99)
b) high blood pressure	1	(15)	2	(85)
c) thrombosis in the heart or other heart disease	1	(1)	2	(99)
d) arthritis	1	(3)	2	(97)
e) migraine or severe head ache	1	(22)	2	(78)
f) ulcer in stomach or intestines	1	(2)	2	(98)
g) diabetes	1	(2)	2	(98)
h) obesity	1	(14)	2	(86)
i) some allergic disease	1	(16)	2	(84)
j) urinary or kidney infection	1	(8)	2	(92)
k) laryngitis, inflammation of the vocal chords	1	(16)	2	(84)
l) mental disturbances	1	(5)	2	(95)

100. Have you during the past two weeks used any of the following medicines?

	yes		no	
		(%)		(%)
a) vitamins (pills or liquid)	1	(30)	2	(70)
b) iron preparations	1	(15)	2	(85)
c) laxative preparations	1	(4)	2	(96)
d) pain killers	1	(34)	2	(66)
e) tranquilizers, eg. Valium, Librium. Diapam	1	(6)	2	(94)
g) other medicines; please specify _____	1	(22)	2	(78)

==========

This is the end of the questionnaire. Please make sure that you have answered every item. You have not missed a question or two, or a whole page by

accident, which could seriously hamper the treating of the results?

Finally, we want to express our thanks for the undoubtedly great trouble you have gone through when filling this questionnaire. We hope that the research results will in turn be of service for different teacher groups in many ways.

APPENDIX 2. Research variables: Abbreviations, names, and operationalization

Municipality and school district

V1 NINHABTS Number of inhabitants (Q15): 1 = less than 3000, 2 = 3000 to 5000, 3 = 5000 to 10000, 4 = 10000 to 30000, 5 = 30000 to 60000, 6 = 60000 to 100000, 7 = 100000 to 200000, 7 = more than 200000.

V2 GRTHPOPL Growth of population (Q17): 1 = population decreases, negative net migration, 2 = stable population, low rate of migration, 3 = stable number of inhabitants with high rate of from-and-to migration, 4 = population increases, positive net migration.

V3 REFOYEAR Year of school reform (Q19): Year of local introduction of the new comprehensive school system (replacing the old binary school). 1 = before 1972, 2 = 1972, 3 = 1973, 4 = 1974, 5 = 1975, 6 =1976, 7 = 1977.

V4 DENSPOPL Density of population / school district (Q21): 1 = scattered houses, 2 = a relatively dense area of one family houses, 3 = a built-up area of one family houses with some blocks of flats, 4 = a built-up area with equal number of one family houses and blocks of flats, 5 = a dense area of mostly blocks of flats, 6 = a dense area of blocks of flats only.

V5 URBNOCCU Urbanness of occupations / school district (Q20a to e): Teacher´s estimate of the proportion of inhabitants in industrial and service occupations subtracted by the proportion of those in primary production (agriculture, forest, fishing). Five items, reliability Alfa = .71.

V6 SESOCCUP SES of occupations / school district (Q20 a,b,c, e): Proportion of farmers and of those in middle-class occupations subtracted by the proportion of small farmers and unskilled workers. Four items, split-half reliability = .06. Due to the high positive correlation between items a and b, this difference scale turns out to be too unreliable for further use in the study.

School
======

V7 SCHOSIZE School size (Q22): Number of pupils.

V8 SCHOCOMP School complex (Q24): 1 = school contains one administrative unit only (lower level, upper level, or upper secondary school), 2 = two or three of these located together.

V9 TURNOVER Turnover of staff. Q25.

V10 SCHOAGE Age of school buildings (Q26): 1 = less than 5 years, 2 = 5 to 10 years, 3 = 10 to 20 years, 4 =20 to 30 years, 5 = over 30 years.

Person and family
=================

V11 SEX Sex (Q1): 1 = male, 2 = female

V12 AGE Age in years (Q2)

V13 MARRIED Family status (Q3): 1= single, divorced or widowed, 2 = married.

V14 CHILDREN Children who need day-care (Q5): 1 = no child in family who needs day-care, 2 = one or more children of day-care age.

Education and professional background
=====================================

V15 HIGHDEGR Higher university degree (Q8): 1 = has not completed higher university degree, 2 = MA, equivalent, or higher degree.

V16 EXTRAEDU Extra studies in educational subjects (Q9): 1 = no more than the minimum studies in educational subjects required for teacher qualification, 2 = extra courses in education and/or psychology.

V17 COMTEACH Teacher in communal school system before school reform (Q36): 1 = no, 2 = yes.

V18 PRITEACH Teacher in private school before school reform (Q36): 1 = no, 2 = yes.

V19 STATEACH Teacher in state-owned school before the reform (Q36): 1 = no, 2 = yes.

Variables V17 to V19 are dummy variables. A combination of the lower values in all of these indicates a teacher who did not work as a teacher during the binary school system or who taught outside the general education system.

School level and subjects
==========

V20 TEALEVEL Main teaching level, school level where a teacher has most of his/her lessons (Q45): 1 = grades 1 to 3 of the comprehensive school, 2 = grades 4 to 6 of the comprehensive school, 3 = grades 7 to 9 of the comprehensive school 4 = upper secondary school.

V21 CLASSTEA Class teacher with many subjects (Q47): 1 = no, 2 = yes.

V22 LANGTEA Language teacher (Q47): 1= no, 2= yes, teacher in mother tongue or in other languages.

V23 MATHTEA Teacher in mathematical subjects incl physics and chemistry (Q47): 1 = no, 2 = yes.

V24 MODNTEA Teacher in modern subjects (Q47): 1 = no, 2 = yes.

Variables V21 to V24 are dummy variables. A combination of the lower values in all of these indicates a teacher in practical or aesthetic subjects.

Pupil contact and teaching contents
==========

V25 NLEVELS Number of teaching levels (Q46): 1 = teaching at the main teaching level (V20) only, 2 = teaching at two or more levels

V26 NSUBJCTS Number of subjects (Q49): The number of different subjects taught during the school term.

V27 NCOURSES Number of courses (Q50): The number of different courses taught during the school term.

V28 NCLASSES Number of classes (Q51): The number of different classes or groups of pupils taught during the school term

V29 NPUPILS Number of pupils (Q52): The total number of pupils taught during the school term.

V30 CLSIZE Class size (Q53): The mean number of pupils in the smallest and in the biggest class or group taught during the school term, split half reliability = .75.

Work load and time budget
==========

V31 CLASSHRS Class hours per week (Q57a,b): The teaching time per week implied by a teacher´s position

added by the number of overtime lessons.

V32 WKOUTCLS Out-of-class work at school, hours per week (Q58a): Respondent´s estimate of hours which he/she ´during a regular school week´ works at school in addition to class hours.

V33 HOMEWKWD Out-of-class work at home on weekdays, hours per week (Q58b): Respondent´s estimate of the hours he/ she ´during a regular school week´ works - because of a teacher´s duties - at home on weekdays (Monday - Friday).

V34 HOMEWKWE Out-of-class work at home at weekends, hours per week (Q58c): Respondent´s estimate of the hours he/she ´during a regular school week´ works at home on week-ends (Saturday and Sunday).

V35 LEISURWD Totally free time for personal use on weekdays, hours per day (Q61a): Respondent´s estimate of the totally free time he/she is awake on work days ´during a regular school week´.

V36 LEISURWE Totally free time at weekends, hours per day (Q61b):Respondent´s estimate of totally free time on Saturdays and Sundays.

Cooperation
==========

V37 TEAMEETS Frequency of teacher meetings (Q65): The frequency of more or less formal staff meetings, 1 = no meetings, 2 = one or two meetings per school term, 3 = about one meeting per month, 4 = about two meetings per month, 5 = one meeting or more per week.

V38 TEAINTER Informal collaboration between teachers: (Q67), items a) to h) summed up after reversing their scale values in a positive direction. Reliability Alfa = .82.

V39 PRNTCONT Frequency of teacher/parent contacts. The index combines the three items of Q76 with Q77 (reversed). Reliability Alfa = .75.

Quality of staff relations
==========

V40 TEACHREL Teacher - teacher relations. Satisfaction with staff relations is measured by items a), b), d), and e) from Q74; response scale values of d) and e) reversed. Reliability Alfa = .79

V41 HEADMREL Teacher - headmaster relations. Satisfaction with headmaster's behaviour is measured by a), b), and c) in Q78; item c) reversed. Alfa = .71.

V42 SUPPCOLL Help and support received from colleagues: Items a) and b) from Q79; scale values reversed in a positive direction. Split-half reliability = .68.

V43 SUPPAUXI Help and support from auxiliary personnel: Items f, g, h, and i) in question Q79; all items reversed. Reliability Alfa = .69.

V44 INFLUENC Possibilities of influencing one's own working conditions: Items a) to i) in Q69; reversed. Reliability Alfa = .73.

V45 SUPPAUTH Help and support from school authorities: Items c), d), j), and o) from Q79; all scale values reversed. Reliability Alafa = .71.

Quality of relations with pupils and parents
==========

V46 PUPILREL Teacher - pupil relations. Satisfaction with class room behaviour (or learning behaviour) of pupils is measured by the four items of Q71; c) and d) reversed. 3420 Reliability Alfa = .79.

V47 PUPILBEH Behaviour disorders among pupils (reversed: lack of): Items a) to f) in Q72. Reliability Alfa = .84.

V48 SUPPUPIL Help and support from one's own pupils: Item k) from Q79, reversed.

V49 PRNTREL Teacher - parent relations: Quality of relations with parents is measured by items b) and c) in Q75; item b) reversed. Split-half reliability = .29.

V50 SUPPRNT Help and support from parents. Item e) in Q79, reversed.

V51 SUPPUBLO Help and support from public opinion. Items p) and q) from Q79, both reversed. Split-half reliability = .63.

Satisfaction with material prerequisites
==========

V52 SCHOROOM Satisfaction with school rooms. All items other than f) and g) (16 items) from Part B in Q27 are reversed in a positive direction and totalled up. Reliability Alfa = .85.

V53 SATEQUIP Satisfaction with learning materials and equipment. Items a) to i) in Q64 and items f) and g) from Q27; all reversed in a positive direction. Reliability Alfa = .71.

V54 SATPHYS Satisfaction with physical and ergonomic working conditions. Items a) to h) in Q28, all reversed. Reliability Alfa = .76.

Satisfaction with schedule
==========

V55 SCHEDTEA Satisfaction with schedule in regard to teaching. Items a), b), and c) from Q56. Alfa = .66.

V56 SCHEDSOC Satisfaction with schedule in regard to social relations. Items d), e), and f) from Q56. Alfa = .60.

Facility of work
==========

V57 TEAFACIL Facility of teaching and upbringing. Items a) and b) from Q80. Split-half reliability = .62.

V58 OTHFACIL Facility of work duties other than immediate work with pupils. Items c), d), and e) from Q80. Alfa = .63.

V59 TRAINTEA Adequacy of one's own training in regard to teaching. Items a) and b) from Q81. Split-half reliability = .67. teachin, and

V60 TRAINOTH Adequacy of one's own training for tasks other than immediate work with pupils. Items c), d), and e) from Q81. Alfa = .78.

Occupational optimism
==========

V61 LOADOPTI Optimism /work load: Items f), h), i), and j) from Q82. Alfa = .72.

V62 MATROPTI Optimism / material prerequisites: Items d) and e) from Q82. Split-half reliability = .62.

V63 ECONOPTI Optimism / employment and income level: Items a), c), and k) from Q82. Alfa = .58.

V64 AUTNOPTI Optimism / freedom and autonomy: Items l) and m) from Q82. Split-half reliability = .69.

V65 PRESTOPT Optimism / prestige: Items b) and g) from Q82. Split-half reliability = .67.

Leisure time activity
==========

V66 PUPLACTV Pupil-oriented activity: Items b), f), and h) from Q91. Alfa = .58.

V67 PROFACTV Professional activity: Items a), c), e), and g) from Q91. Alfa = .49.

V68 ORGSACTV Political and organizational activity: Items k, d), i), and j) from Q91. Alfa = .59.

V69 RECRACTV Personal recreation and self-development: Items l), m), n), and o) from Q91. Alfa = .31.

Psychological well-being and satisfaction in work
==========

V70 WORKANX Work-related anxiety (reversed: freedom from). Q83, Q84, and Q85. Reliability Alfa = .61.

V71 FATIGUE Fatigue after work (reversed: freedom from). Q86 and Q87. Split-half reliability = .50.

V72 JOBSATSF General job satisfaction in the form of willingness to continue in teaching. Q89 and Q90, both items reversed. Split-half reliability = .61.

V73 WKSOCEST Social esteem in work. Experiences and feelings of receiving respect and esteem in work. Items Q92.1a and Q92.7a. Split-half reliability = .52.

V74 WKTRUSTF Interpersonal confidence in work. This scale of social confidence (as opposed to distrusting, introversive or isolation tendencies) is composed of items Q92.2a and Q92.4a. Split-half reliability = ..59.

V75 WSELFEST Self-esteem in work. Items Q92.3a and Q92.5a. Split-half reliability = .68.

V76 WMEANING Meaningfulness of work. Items Q92.6a and Q92.8a. Split-half reliability = ..62.

Psychological well-being outside work
==========

V77 HMSOCEST Social esteem in family and leisure. Q92.1b and 1c, and Q92.7b and 7c. Alfa = .63.

V78 HMTRUSTF Interpersonal confidence in family and leisure. Q92.2b and 2c; Q92.4b and 4c. Alfa = .77.

V79 HSELFEST Self-esteem in family and leisure. Q92.3b and 3c; Q92.5b and 5c. Alfa = .78.

V80 HMEANING Meaningfulness in family and leisure. Q92.6b, 6c; Q92.8b and 8c. Alfa = .77.

Psychosomatic well-being (freedom from stress symptoms)
==========

V81 PSYSYMPT Freedom from psychic stress symtoms: Items p), u), v), x), and y) from Q98. Alfa = .80.

V82 ACHES Freedom from (muscular) aches: Items k), l), m), n), o), and t) from Q98. Alfa = .82.

V83 CIRCULAT Freedom from circulatory symptoms: Items a), b), c), q), r), and s) from Q98. Alfa = .78.

V84 RESPIRAT Freedom from respiratory symptoms: Items f), g) and h) from Q98. Alfa = .78.

V85 STOMACH Freedom from stomach symptoms: Items d) and e) from Q98. Split-half reliability = .67.

Health and sickness absences
==========

V86 GENHEALT General state of health. Q93. Scale values reversed in a positive direction.

V87 ILLNESS Health / freedom from illnesses. Items a) to l) in Q99. Alfa = .39.

V88 MEDICINS Health / non-use of mediciness. Items a) to g) in Q100. Alfa = .41.

V89 ABSENCES Health / low rate of absence. Q94 and Q95; scale values reversed. Split-half reliability = .83.

APPENDIX 3. Comparison of teaching level group means and variances in variables V1 through V89 (see Appendix 2.)

Variable V1 NINHABTS Number of inhabitants - community

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	3.96	1.79	(1&2)-(3&4)	-5.583	991.6	.000
2=COMPR4-6	582	3.92	1.76	(1)-(2)	.397	1002.4	.691
3=COMPR7-9	657	4.26	1.82	(3)-(4)	-2.492	422.6	.013
4=UPPERSEC	233	4.60	1.74				
TOTAL	1945	4.13	1.80				

Analysis of Variance: F(3,1941) = 10.453, p = .0000, Eta = .13
Homogeneity of Variances: Cochran's C = .2606, p = .889

Variable V2 GRTHPOPL Growth of population - community

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	2.39	1.11	(1&2)-(3&4)	-.391	1084.8	.696
2=COMPR4-6	583	2.34	1.14	(1)-(2)	.588	1019.9	.557
3=COMPR7-9	657	2.37	1.13	(3)-(4)	-.383	440.2	.702
4=UPPERSEC	231	2.40	1.02				
TOTAL	1944	2.37	1.12				

Analysis of Variance: F(3,1940) = .192, p = .9021, Eta = .02
Homogeneity of Variances: Cochran's C = .2685, p = .372

Variable V3 REFOYEAR Year of school reform - community

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	4.27	1.74	(1&2)-(3&4)	-4.737	1039.6	.000
2=COMPR4-6	577	4.18	1.75	(1)-(2)	.826	996.1	.409
3=COMPR7-9	653	4.59	1.80	(3)-(4)	-.600	436.5	.549
4=UPPERSEC	231	4.67	1.66				
TOTAL	1927	4.40	1.77				

Analysis of Variance: F(3,1923) = 8.098, p = .0000, Eta = .11
Homogeneity of Variances: Cochran's C = .2691, p = .349

Variable V4 DENSPOPL Density of population - school district

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	471	2.61	1.53	(1&2)-(3&4)	-8.875	1075.9	.000
2=COMPR4-6	584	2.61	1.56	(1)-(2)	.050	1014.4	.960
3=COMPR7-9	656	3.13	1.44	(3)-(4)	-2.231	420.5	.026
4=UPPERSEC	233	3.37	1.39				
TOTAL	1944	2.88	1.52				

Analysis of Variance: F(3,1940) = 25.752, p = .0000, Eta = .20
Homogeneity of Variances: Cochran's C = .2777, p = .100

Variable V5 URBNOCCU Urbanness of occupations - school district

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	414	3.18	2.93	(1&2)-(3&4)	-2.271	1059.7	.023
2=COMPR4-6	515	2.94	2.84	(1)-(2)	1.269	873.3	.205
3=COMPR7-9	601	3.17	2.41	(3)-(4)	-2.028	378.0	.043
4=UPPERSEC	213	3.56	2.37				
TOTAL	1743	3.15	2.67				

Analysis of Variance: F(3,1739) = 2.770, p = .0404, Eta = .07
Homogeneity of Variances: Cochran's C = .3053, p = .001

Variable V6 SESOCCUP SES of occupations - school district

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	416	.09	1.36	(1&2)-(3&4)	-3.095	1095.4	.002
2=COMPR4-6	516	.10	1.32	(1)-(2)	-.047	877.4	.963
3=COMPR7-9	605	.25	1.22	(3)-(4)	-.903	406.6	.367
4=UPPERSEC	213	.33	1.10				
TOTAL	1750	.18	1.27				

Analysis of Variance: F(3,1746) = 2.999, p = .0296, Eta = .07
Homogeneity of Variances: Cochran's C = .2942, p = .007

Variable V7 SCHOSIZE School size, number of pupils

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	234.15	235.83	(1&2)-(3&4)	-12.77	1247.3	.000
2=COMPR4-6	580	261.27	254.58	(1)-(2)	-1.786	1026.3	.074
3=COMPR7-9	654	461.86	214.11	(3)-(4)	10.166	447.4	.000
4=UPPERSEC	232	307.65	192.66				
TOTAL	1934	328.10	249.71				

Analysis of Variance: F(3,1930) = 116.798, p = .0000, Eta = .39
Homogeneity of Variances: Cochran's C = .3187, p = .000

Variable V8 SCHOCOMP School complex

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	1.12	.33	(1&2)-(3&4)	-40.14	1113.8	.000
2=COMPR4-6	582	1.14	.34	(1)-(2)	-.730	1021.9	.465
3=COMPR7-9	658	1.77	.42	(3)-(4)	-3.864	514.4	.000
4=UPPERSEC	233	1.87	.33				
TOTAL	1943	1.43	.49				

Analysis of Variance: F(3,1939) = 525.884, p = .0000, Eta = .67
Homogeneity of Variances: Cochran's C = .3420, p = .000

Variable V9 TURNOVER Turnover of staff

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	2.06	.94	(1&2)-(3&4)	-6.534	1310.6	.000
2=COMPR4-6	581	2.05	.93	(1)-(2)	.148	993.8	.883
3=COMPR7-9	654	2.36	.68	(3)-(4)	2.024	422.7	.044
4=UPPERSEC	232	2.25	.65				
TOTAL	1935	2.18	.83				

Analysis of Variance: F(3,1931) = 18.784, p = .0000, Eta = .17
Homogeneity of Variances: Cochran's C = .3366, p = .000

Variable V10 SCHOAGE Age of school buildings

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	471	3.32	1.22	(1&2)-(3&4)	8.626	1107.0	.000
2=COMPR4-6	581	3.25	1.19	(1)-(2)	.985	996.6	.325
3=COMPR7-9	657	2.76	1.09	(3)-(4)	-1.215	420.8	.225
4=UPPERSEC	233	2.86	1.05				
TOTAL	1942	3.05	1.17				

Analysis of Variance: F(3,1938) = 30.602, p = .0000, Eta = .21
Homogeneity of Variances: Cochran's C = .2856, p = .025

Variable V11 SEX Sex, female

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	472	1.90	.29	(1&2)-(3&4)	-1.897	767.0	.058
2=COMPR4-6	582	1.34	.47	(1)-(2)	23.727	983.7	.000
3=COMPR7-9	650	1.65	.47	(3)-(4)	-.387	402.7	.699
4=UPPERSEC	229	1.67	.47				
TOTAL	1933	1.62	.48				

Analysis of Variance: F(3,1929) = 149.358, p = .0000, Eta = .43
Homogeneity of Variances: Cochran's C = .2979, p = .002

Variable V12 AGE Age, years

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	469	40.68	9.88	(1&2)-(3&4)	2.997	1136.3	.003
2=COMPR4-6	580	40.46	8.73	(1)-(2)	.373	941.8	.710
3=COMPR7-9	653	38.67	7.83	(3)-(4)	-2.247	412.2	.025
4=UPPERSEC	231	39.99	7.65				
TOTAL	1933	39.85	8.65				

Analysis of Variance: F(3,1929) = 6.548, p = .0002, Eta = .10
Homogeneity of Variances: Cochran's C = .3324, p = .000

Variable V13 MARRIED Family status, married

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	472	1.78	.40	(1&2)-(3&4)	4.657	728.8	.000
2=COMPR4-6	583	1.89	.31	(1)-(2)	-4.551	861.7	.000
3=COMPR7-9	654	1.77	.41	(3)-(4)	1.794	377.1	.074
4=UPPERSEC	231	1.71	.45				
TOTAL	1940	1.80	.39				

Analysis of Variance: F(3,1936) = 15.296, p = .0000, Eta = .15
Homogeneity of Variances: Cochran´s C = .3186, p = .000

Variable V14 CHILDREN Children who need day care

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	469	1.25	.43	(1&2)-(3&4)	-3.438	876.4	.001
2=COMPR4-6	580	1.35	.47	(1)-(2)	-3.527	1032.4	.000
3=COMPR7-9	654	1.38	.48	(3)-(4)	.227	399.5	.821
4=UPPERSEC	229	1.37	.48				
TOTAL	1932	1.34	.47				

Analysis of Variance: F(3,1928) = 8.143, p = .0000, Eta = .11
Homogeneity of Variances: Cochran´s C = .2664, p = .485

Variable V15 HIGHDEGR Higher university degree

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	474	1.01	.12	(1&2)-(3&4)	-35.30	618.8	.000
2=COMPR4-6	584	1.03	.18	(1)-(2)	-2.231	1009.3	.026
3=COMPR7-9	656	1.25	.43	(3)-(4)	-21.23	503.8	.000
4=UPPERSEC	233	1.85	.34				
TOTAL	1947	1.20	.40				

Analysis of Variance: F(3,1943) = 486.514, p = .0000, Eta = .65
Homogeneity of Variances: Cochran´s C = .5248, p = .000

Variable V16 EXTRAEDU Extra studies in educational subjects

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	474	1.62	.48	(1&2)-(3&4)	-5.278	1055.8	.000
2=COMPR4-6	583	1.55	.49	(1)-(2)	2.292	1020.8	.022
3=COMPR7-9	657	1.69	.46	(3)-(4)	-.825	417.5	.410
4=UPPERSEC	233	1.72	.44				
TOTAL	1947	1.63	.48				

Analysis of Variance: F(3,1943) = 11.931, p = .0000, Eta = .13
Homogeneity of Variances: Cochran´s C = .2757, p = .137

Variable V17 COMTEACH Teacher in communal school before reform

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	474	1.79	.40	(1&2)-(3&4)	30.891	1749.7	.000
2=COMPR4-6	583	1.78	.41	(1)-(2)	.304	1016.6	.762
3=COMPR7-9	656	1.40	.49	(3)-(4)	13.185	770.7	.000
4=UPPERSEC	232	1.06	.25				
TOTAL	1945	1.57	.49				

Analysis of Variance: F(3,1941) = 235.636, p = .0000, Eta = .52
Homogeneity of Variances: Cochran's C = .3775, p = .000

Variable V18 PRITEACH Teacher in private school before reform

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	474	1.00	.07	(1&2)-(3&4)	-20.93	407.4	.000
2=COMPR4-6	583	1.02	.14	(1)-(2)	-2.242	925.1	.025
3=COMPR7-9	656	1.31	.46	(3)-(4)	-5.497	379.7	.000
4=UPPERSEC	232	1.51	.50				
TOTAL	1945	1.17	.37				

Analysis of Variance: F(3,1941) = 200.527, p = .0000, Eta = .49
Homogeneity of Variances: Cochran's C = .5082, p = .000

Variable V19 STATEACH Teacher in state-owned school before reform

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	474	1.00	.07	(1&2)-(3&4)	-12.28	336.5	.000
2=COMPR4-6	583	1.00	.07	(1)-(2)	.252	963.2	.801
3=COMPR7-9	656	1.12	.33	(3)-(4)	-4.989	322.9	.000
4=UPPERSEC	232	1.28	.45				
TOTAL	1945	1.08	.27				

Analysis of Variance: F(3,1941) = 89.128, p = .0000, Eta = .35
Homogeneity of Variances: Cochran's C = .6281, p = .000

Variable V21 CLASSTEA Class teacher with many subjects

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	1.91	.28	(1&2)-(3&4)	81.462	1484.5	.000
2=COMPR4-6	582	1.86	.34	(1)-(2)	2.552	1052.9	.011
3=COMPR7-9	650	1.03	.17	(3)-(4)	2.575	768.0	.010
4=UPPERSEC	233	1.00	.09				
TOTAL	1938	1.49	.50				

Analysis of Variance: F(3,1934) = 1794, p = .0000, Eta = .86
Homogeneity of Variances: Cochran's C = .4965, p = .000

Variable V22 LANGTEA Language teacher

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	1.06	.24	(1&2)-(3&4)	-16.58	527.9	.000
2=COMPR4-6	582	1.09	.29	(1)-(2)	-1.644	1050.5	.100
3=COMPR7-9	650	1.26	.43	(3)-(4)	-8.282	370.3	.000
4=UPPERSEC	233	1.56	.49				
TOTAL	1938	1.19	.39				

Analysis of Variance: F(3,1934) = 121.173, p = .0000, Eta = .40
Homogeneity of Variances: Cochran's C = .4210, p = .000

Variable V23 MATHTEA Teacher in mathematical subjects

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	1.00	.04	(1&2)-(3&4)	-11.78	435.5	.000
2=COMPR4-6	582	1.00	.05	(1)-(2)	-.411	1051.8	.681
3=COMPR7-9	650	1.18	.38	(3)-(4)	.645	424.7	.519
4=UPPERSEC	233	1.16	.37				
TOTAL	1938	1.08	.27				

Analysis of Variance: F(3,1934) = 71.562, p = .0000, Eta = .32
Homogeneity of Variances: Cochran's C = .5106, p = .000

Variable V24 MODNTEA Teacher in modern subjects

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	1.00	.04	(1&2)-(3&4)	-12.55	413.2	.000
2=COMPR4-6	582	1.00	.09	(1)-(2)	-1.481	887.7	.139
3=COMPR7-9	650	1.19	.39	(3)-(4)	-.582	397.2	.561
4=UPPERSEC	233	1.21	.40				
TOTAL	1938	1.09	.29				

Analysis of Variance: F(3,1934) = 78.23, p = .0000, Eta = .33
Homogeneity of Variances: Cochran's C = .5009, p = .000

Variable V25 NLEVELS Number of teaching levels

GROUP	COUNT	MEAN	S.D.	APRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	1.64	.47	(1&2)-(3&4)	7.909	895.4	.000
2=COMPR4-6	581	1.52	.49	(1)-(2)	4.164	1025.4	.000
3=COMPR7-9	654	1.32	.46	(3)-(4)	-3.611	382.7	.000
4=UPPERSEC	231	1.46	.49				
TOTAL	1939	1.48	.49				

Analysis of Variance: F(3,1935) = 42.518, p = .0000, Eta = .25
Homogeneity of Variances: Cochran's C = .2635, p = .664

Variable V26 NSUBJCTS Number of subjects

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	463	7.94	2.01	(1&2)-(3&4)	67.636	1491.4	.000
2=COMPR4-6	577	8.63	3.22	(1)-(2)	-4.264	982.9	.000
3=COMPR7-9	654	2.36	1.90	(3)-(4)	8.032	882.1	.000
4=UPPERSEC	232	1.65	.70				
TOTAL	1926	5.50	3.85				

Analysis of Variance: F(3,1922) = 1134.194, p = .000, Eta = .80
Homogeneity of Variances: Cochran's C = .5597, p = .000

Variable V27 NCOURSES Number of courses

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	402	6.91	6.56	(1&2)-(3&4)	12.002	1057.0	.000
2=COMPR4-6	539	8.32	6.05	(1)-(2)	-3.352	824.3	.001
3=COMPR7-9	628	4.85	2.27	(3)-(4)	-.707	425.9	.480
4=UPPERSEC	226	4.97	2.11				
TOTAL	1795	6.37	5.02				

Analysis of Variance: F(3,1791) = 58.657, p = .0000, Eta = .30
Homogeneity of Variances: Cochran's C = .4817, p = .000

Variable V28 NCLASSES Number of classes

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	3.68	4.45	(1&2)-(3&4)	-27.41	1203.7	.000
2=COMPR4-6	579	4.10	2.72	(1)-(2)	-1.806	734.2	.071
3=COMPR7-9	656	8.78	3.33	(3)-(4)	4.191	492.7	.000
4=UPPERSEC	233	7.85	2.73				
TOTAL	1934	6.04	4.13				

Analysis of Variance: F(3,1930) = 299.224, p = .0000, Eta = .56
Homogeneity of Variances: Cochran's C = .4324, p = .000

Variable V29 NPUPILS Number of pupils taught

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	58.50	69.20	(1&2)-(3&4)	-31.10	822.9	.000
2=COMPR4-6	579	81.70	77.70	(1)-(2)	-5.100	1038.1	.000
3=COMPR7-9	658	208.10	100.60	(3)-(4)	1.911	444.2	.057
4=UPPERSEC	230	194.50	89.80				
TOTAL	1937	132.40	108.80				

Analysis of Variance: F(3,1933) = 393.721, p = .0000, Eta = .62
Homogeneity of Variances: Cochran's C = .3488, p = .000

Variable V30 CLSIZE Class size

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	16.14	7.29	(1&2)-(3&4)	-19.66	1395.9	.000
2=COMPR4-6	578	19.52	7.47	(1)-(2)	-7.354	1005.3	.000
3=COMPR7-9	650	23.38	5.86	(3)-(4)	-2.247	473.1	.025
4=UPPERSEC	233	24.28	5.02				
TOTAL	1927	20.58	7.32				

Analysis of Variance: F(3,1923) = 136.350, p = .0000, Eta = .42
Homogeneity of Variances: Cochran's C = .3314, p = .000

Variable V31 CLASSHRS Class hours per week

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	471	25.09	2.80	(1&2)-(3&4)	10.710	664.3	.000
2=COMPR4-6	575	25.13	3.30	(1)-(2)	-.183	1042.7	.855
3=COMPR7-9	649	23.54	4.81	(3)-(4)	3.357	418.6	.001
4=UPPERSEC	230	22.34	4.60				
TOTAL	1925	24.25	4.06				

Analysis of Variance: F(3,1921) = 41.540, p = .0000, Eta = .25
Homogeneity of Variances: Cochran's C = .3668, p = .000

Variable V32 WKOUTCLS Out-of-class work at school, hours per week

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	458	4.25	5.84	(1&2)-(3&4)	-2.153	690.6	.032
2=COMPR4-6	567	5.32	6.65	(1)-(2)	-2.730	1016.0	.006
3=COMPR7-9	643	5.15	7.15	(3)-(4)	-1.346	363.8	.179
4=UPPERSEC	229	5.96	8.05				
TOTAL	1897	5.08	6.84				

Analysis of Variance: F(3,1893) = 3.777, p = .0102, Eta = .08
Homogeneity of Variances: Cochran's C = .3336, p = .000

Variable V33 HOMEWKWD Out-of-class work at home on week days

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	465	5.30	4.11	(1&2)-(3&4)	-13.28	552.5	.000
2=COMPR4-6	572	6.18	4.14	(1)-(2)	-3.432	995.2	.001
3=COMPR7-9	645	7.75	5.72	(3)-(4)	-6.909	353.3	.000
4=UPPERSEC	230	11.20	6.75				
TOTAL	1912	7.10	5.38				

Analysis of Variance: F(3,1908) = 79.087, p = .0000, Eta = .33
Homogeneity of Variances: Cochran's C = .4055, p = .000

Variable V34 HOMEWKWE Out-of-class work at home on week-ends

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	456	2.03	2.02	(1&2)-(3&4)	-12.89	606.2	.000
2=COMPR4-6	570	2.36	2.04	(1)-(2)	-2.627	980.1	.009
3=COMPR7-9	643	3.61	3.56	(3)-(4)	-3.744	411.5	.000
4=UPPERSEC	229	4.62	3.46				
TOTAL	1898	2.98	2.96				

Analysis of Variance: F(3,1894) = 62.526, p = .0000, Eta = .30
Homogeneity of Variances: Cochran's C = .3849, p = .000

Variable V35 LEISURWD Totally free time on work days, hrs per day

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	2.93	1.83	(1&2)-(3&4)	5.159	1062.2	.000
2=COMPR4-6	571	3.28	1.88	(1)-(2)	-3.010	1005.2	.003
3=COMPR7-9	653	2.70	1.86	(3)-(4)	.771	434.4	.441
4=UPPERSEC	232	2.60	1.73				
TOTAL	1922	2.92	1.86				

Analysis of Variance: F(3,1918) = 12.753, p = .0000, Eta = .14
Homogeneity of Variances: Cochran's C = .2667, p = .466

Variable V36 LEISURWE Totally free time on week-ends, hrs per day

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	459	7.15	3.49	(1&2)-(3&4)	.979	928.9	.328
2=COMPR4-6	562	8.55	3.87	(1)-(2)	-6.089	1009.2	.000
3=COMPR7-9	650	7.50	3.70	(3)-(4)	-1.172	398.1	.242
4=UPPERSEC	230	7.84	3.74				
TOTAL	1901	7.77	3.74				

Analysis of Variance: F(3,1897) = 13.809, P = .0000, Eta = .15
Homogeneity of Variances: Cochran's C = .2734, p = .199

Variable V37 TEAMEETS Frequency of teacher meetings

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	1.97	1.16	(1&2)-(3&4)	.923	1229.8	.356
2=COMPR4-6	584	2.10	1.17	(1)-(2)	-1.687	1010.7	.092
3=COMPR7-9	658	2.04	.95	(3)-(4)	1.531	426.4	.126
4=UPPERSEC	232	1.93	.90				
TOTAL	1947	2.03	1.07				

Analysis of Variance: F(3,1943) = 1.812, p = .1429, Eta = .05
Homogeneity of Variances: Cochran's C = .3067, p = .000

Variable V38 TEAINTER Informal collaboration among teachers

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	449	26.55	7.50	(1&2)-(3&4)	2.283	948.3	.023
2=COMPR4-6	557	26.82	6.90	(1)-(2)	-.589	922.1	.556
3=COMPR7-9	627	26.68	6.44	(3)-(4)	3.029	371.7	.003
4=UPPERSEC	220	25.11	6.67				
TOTAL	1853	26.51	6.89				

Analysis of Variance: F(3,1849) = 3.552, p = .0139, Eta = .08
Homogeneity of Variances: Cochran's C = .2962, p = .003

Variable V39 PRNTCONT Frequency of teacher-parent contacts

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	404	13.09	2.35	(1&2)-(3&4)	39.987	1044.9	.000
2=COMPR4-6	487	11.54	2.51	(1)-(2)	9.510	876.8	.000
3=COMPR7-9	564	7.78	2.39	(3)-(4)	3.289	409.6	.001
4=UPPERSEC	205	7.19	2.09				
TOTAL	1660	10.10	3.36				

Analysis of Variance: F(3,1656) 549.679, p = .0000, Eta = .71
Homogeneity of Variances: Cochran's C = .2883, p = .026

Variable V40 TEACHREL Teacher - teacher relations

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	459	12.76	3.00	(1&2)-(3&4)	10.172	1139.5	.000
2=COMPR4-6	572	12.78	2.79	(1)-(2)	-.154	949.1	.878
3=COMPR7-9	648	11.34	2.53	(3)-(4)	-1.052	419.5	.293
4=UPPERSEC	229	11.54	2.40				
TOTAL	1908	12.14	2.80				

Analysis of Variance: F(3,1904) = 40.979, p = .0000, Eta = .25
Homogeneity of Variances: Cochran's C = .3104, p = .000

Variable V41 HEADMREL Teacher - headmaster relations

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	453	9.66	2.23	(1&2)-(3&4)	6.286	856.9	.000
2=COMPR4-6	561	9.58	1.87	(1)-(2)	.637	880.2	.525
3=COMPR7-9	636	9.09	1.99	(3)-(4)	1.554	368.0	.121
4=UPPERSEC	222	8.84	2.10				
TOTAL	1872	9.34	2.05				

Analysis of Variance: F(3,1868) = 14.047, p = .0000, Eta = .15
Homogeneity of Variances: Cochran's C = .2958, p = .003

Variable V42 SUPPCOL Help and support from colleagues

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	454	5.74	1.51	(1&2)-(3&4)	2.620	929.7	.009
2=COMPR4-6	486	5.79	1.49	(1)-(2)	-.442	931.4	.658
3=COMPR7-9	634	5.58	1.41	(3)-(4)	.148	371.5	.882
4=UPPERSEC	220	5.56	1.45				
TOTAL	1794	5.67	1.46				

Analysis of Variance: F(3,1790) = 2.659, p = .0468, Eta = .07
Homogeneity of Variances: Cochran's C = .2654, p = .574

Variable V43 SUPPAUXI Help and support from auxiliary personnel

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	448	8.55	2.51	(1&2)-(3&4)	-7.745	967.1	.000
2=COMPR4-6	547	8.59	2.68	(1)-(2)	-.246	975.7	.806
3=COMPR7-9	644	9.56	2.72	(3)-(4)	-.235	416.2	.815
4=UPPERSEC	229	9.61	2.61				
TOTAL	1868	9.04	2.69				

Analysis of Variance: F(3,1864) = 22.161, p = .0000, Eta = .19
Homogeneity of Variances: Cochran's C = .2671, p = .460

Variable V44 INFLUENC Possibilities to influence one's own work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	454	15.90	2.11	(1&2)-(3&4)	9.072	804.6	.000
2=COMPR4-6	571	15.69	2.12	(1)-(2)	1.607	974.5	.108
3=COMPR7-9	632	14.53	2.32	(3)-(4)	-2.544	384.0	.011
4=UPPERSEC	224	15.00	2.37				
TOTAL	1881	15.27	2.29				

Analysis of Variance: F(3,1877) = 43.391, p = .0000, Eta = .25
Homogeneity of Variances: Cochran's C = .2825, p = .049

Variable V45 SUPPAUTH Help and support from school authorities

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	457	7.79	1.87	(1&2)-(3&4)	13.680	975.5	.000
2=COMPR4-6	564	7.81	1.93	(1)-(2)	-.167	986.8	.868
3=COMPR7-9	636	6.72	2.05	(3)-(4)	2.997	423.4	.003
4=UPPERSEC	220	6.27	1.83				
TOTAL	1877	7.25	2.04				

Analysis of Variance: F(3,1873) = 61.148, p = .0000, Eta = .30
Homogeneity of Variances: Cochran's C = .2856, p = .073

Variable V46 PUPILREL Teacher - pupil relations

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	13.24	2.18	(1&2)-(3&4)	14.278	1079.0	.000
2=COMPR4-6	580	12.75	2.13	(1)-(2)	3.602	993.4	.000
3=COMPR7-9	652	11.05	2.34	(3)-(4)	-5.498	461.8	.000
4=UPPERSEC	231	11.94	2.02				
TOTAL	1933	12.20	2.38				

Analysis of Variance: F(3,1929) = 106.990, p = .0000, Eta = .38
Homogeneity of Variances: Cochran's C = .2892, p = .013

Variable V47 PUPILBEH Scarsity of problem behaviour among pupils

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	22.12	1.89	(1&2)-(3&4)	36.199	912.3	.000
2=COMPR4-6	580	21.05	2.36	(1)-(2)	8.185	1047.9	.000
3=COMPR7-9	637	15.87	2.94	(3)-(4)	-14.48	476.3	.000
4=UPPERSEC	222	18.72	2.36				
TOTAL	1909	19.32	3.60				

Analysis of Variance: F(3,1905) = 711.335, p = .0000, Eta = .73
Homogeneity of Variances: Cochran's C = .3702, p = .000

Variable V48 SUPPUPIL Help and support from pupils

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	2.71	.73	(1&2)-(3&4)	1.297	982.7	.195
2=COMPR4-6	577	2.69	.75	(1)-(2)	.255	1003.2	.798
3=COMPR7-9	649	2.56	.74	(3)-(4)	-3.278	411.6	.001
4=UPPERSEC	231	2.74	.72				
TOTAL	1923	2.66	.74				

Analysis of Variance: F(3,1919) = 5.829, p = .0006, Eta = .10
Homogeneity of Variances: Cochran's C = .2595, p = .984

Variable V49 PRNTREL Teacher - parents relations

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	463	6.68	1.01	(1&2)-(3&4)	18.503	1097.2	.000
2=COMPR4-6	576	6.43	1.09	(1)-(2)	3.842	1018.0	.000
3=COMPR7-9	643	5.68	1.09	(3)-(4)	1.748	454.3	.081
4=UPPERSEC	229	5.55	.96				
TOTAL	1911	6.13	1.15				

Analysis of Variance: F(3,1907) = 116.545, p = .0000, Eta = .39
Homogeneity of Variances: Cochran's C = .2767, p = .121

Variable V50 SUPPRNT Help and support from parents

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	469	2.46	.72	(1&2)-(3&4)	17.522	1003.4	.000
2=COMPR4-6	577	2.29	.70	(1)-(2)	3.813	992.6	.000
3=COMPR7-9	653	1.87	.65	(3)-(4)	3.039	396.8	.003
4=UPPERSEC	230	1.71	.66				
TOTAL	1929	2.12	.74				

Analysis of Variance: F(3,1925) = 108.181, p = .0000, Eta = .38
Homogeneity of Variances: Cochran's C = .2752, p = .150

Variable V51 SUPPUBLO Help and support from public opinion

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	3.65	1.13	(1&2)-(3&4)	4.929	906.1	.000
2=COMPR4-6	576	3.74	1.10	(1)-(2)	-1.201	992.3	.230
3=COMPR7-9	653	3.44	1.10	(3)-(4)	.473	387.9	.636
4=UPPERSEC	228	3.40	1.12				
TOTAL	1927	3.58	1.11				

Analysis of Variance: F(3,1923) = 9.779, p = .0000, Eta = .12
Homogeneity of Variances: Cochran's C = .2567, p = 1.000

Variable V52 SCHOROOM Satisfaction with school rooms

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	351	22.67	4.16	(1&2)-(3&4)	-4.062	828.6	.000
2=COMPR4-6	459	22.61	4.33	(1)-(2)	.217	767.2	.828
3=COMPR7-9	539	23.34	3.94	(3)-(4)	-1.251	319.0	.212
4=UPPERSEC	181	23.75	3.81				
TOTAL	1530	23.01	4.11				

Analysis of Variance: F(3,1526) = 5.420, p = .0010, Eta = .10
Homogeneity of Variances: Cochran's C = .2832, p = .076

Variable V53 SATEQUIP Satisfaction with learning materials

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	389	17.69	2.60	(1&2)-(3&4)	-7.145	789.0	.000
2=COMPR4-6	488	17.33	2.64	(1)-(2)	2.047	836.6	.041
3=COMPR7-9	527	18.32	2.53	(3)-(4)	-1.650	320.9	.100
4=UPPERSEC	178	18.67	2.39				
TOTAL	1582	17.90	2.61				

Analysis of Variance: F(3,1581) = 18.968, p = .0000, Eta = .19
Homogeneity of Variances: Cochran's C = .2690, p = .441

Variable V54 SATPHYS Satisfaction with physical working conditions

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	459	19.44	3.07	(1&2)-(3&4)	1.956	1065.5	.051
2=COMPR4-6	573	18.94	3.23	(1)-(2)	2.531	1001.1	.012
3=COMPR7-9	642	18.39	3.48	(3)-(4)	-4.145	461.9	.000
4=UPPERSEC	228	19.39	2.98				
TOTAL	1902	18.93	3.28				

Analysis of Variance: F(3,1898) = 11.196, p = .0000, Eta = .13
Homogeneity of Variances: Cochran's C = .2970, p = .002

Variable V55 SCHEDTEA Satisfaction with schedule - teaching

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	472	8.02	1.27	(1&2)-(3&4)	-8.780	1572.7	.000
2=COMPR4-6	572	7.58	1.51	(1)-(2)	5.043	1041.4	.000
3=COMPR7-9	653	8.14	1.20	(3)-(4)	-4.192	563.0	.000
4=UPPERSEC	229	8.45	.85				
TOTAL	1926	7.98	1.31				

Analysis of Variance: F(3,1922) = 32.096, p = .0000, Eta = .22
Homogeneity of Variances: Cochran's C = .3754, p = .000

Variable V56 SCHEDSOC Satisfaction with schedule - soc. relations

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	472	8.24	1.08	(1&2)-(3&4)	4.314	979.7	.000
2=COMPR4-6	577	7.88	1.27	(1)-(2)	4.837	1045.6	.000
3=COMPR7-9	656	7.57	1.44	(3)-(4)	-4.483	464.8	.000
4=UPPERSEC	228	8.02	1.22				
TOTAL	1933	7.88	1.31				

Analysis of Variance: F(3,1929) = 25.189, p = .0000, Eta = .19
Homogeneity of Variances: Cochran's C = .3284, p = .000

Variable V57 TEAFACIL Facility of teaching and up-bringing

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	7.28	1.30	(1&2)-(3&4)	2.396	931.3	.017
2=COMPR4-6	583	7.09	1.37	(1)-(2)	2.381	1027.8	.017
3=COMPR7-9	657	6.89	1.34	(3)-(4)	-2.660	401.8	.008
4=UPPERSEC	232	7.16	1.35				
TOTAL	1945	7.08	1.35				

Analysis of Variance: F(3,1941) = 8.328, p = .0000, Eta = .11
Homogeneity of Variances: Cochran's C = .2604, p = .907

Variable V58 OTHFACIL Facility of other work duties

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	462	11.25	1.80	(1&2)-(3&4)	1.723	941.9	.085
2=COMPR4-6	576	11.04	1.88	(1)-(2)	1.841	1004.3	.066
3=COMPR7-9	654	10.85	1.98	(3)-(4)	-1.784	414.6	.075
4=UPPERSEC	226	11.11	1.85				
TOTAL	1918	11.04	1.90				

Analysis of Variance: F(3,1914) = 4.093, p = .0066, Eta = .08
Homogeneity of Variances: Cochran's C = .2762, p = .131

Variable V59 TRAINTEA Adequacy of training for teaching

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	469	5.53	1.33	(1&2)-(3&4)	4.975	994.5	.000
2=COMPR4-6	581	5.44	1.24	(1)-(2)	1.199	970.4	.231
3=COMPR7-9	648	5.26	1.40	(3)-(4)	1.870	436.9	.062
4=UPPERSEC	229	5.07	1.27				
TOTAL	1927	5.36	1.33				

Analysis of Variance: F(3,1923) = 8.219, p = .0000, Eta = .11
Homogeneity of Variances: Cochran's C = .2832, p = .040

Variable V60 TRAINOTH Adequacy of training for other duties

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	465	6.60	1.96	(1&2)-(3&4)	4.842	980.3	.000
2=COMPR4-6	573	6.28	1.92	(1)-(2)	2.567	982.0	.010
3=COMPR7-9	641	6.15	1.98	(3)-(4)	2.414	416.1	.016
4=UPPERSEC	228	5.80	1.89				
TOTAL	1907	6.26	1.96				

Analysis of Variance: F(3,1903) = 9.510, p = .0000, Eta = .12
Homogeneity of Variances: Cochran's C = .2603, p = .919

Variable V61 LOADOPTI Optimism - work load

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	462	20.56	2.29	(1&2)-(3&4)	7.327	925.3	.000
2=COMPR4-6	569	20.52	2.22	(1)-(2)	.304	972.9	.762
3=COMPR7-9	641	19.63	2.55	(3)-(4)	-.524	429.4	.601
4=UPPERSEC	231	19.73	2.40				
TOTAL	1903	20.13	2.41				

Analysis of Variance: F(3,1899) = 21.806, p = .0000, Eta = .18
Homogeneity of Variances: Cochran's C = .2899, p = .012

Variable V62 MATROPTI Optimism - material prerequisites

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	6.54	1.17	(1&2)-(3&4)	-.540	958.3	.589
2=COMPR4-6	573	6.56	1.16	(1)-(2)	-.176	996.6	.861
3=COMPR7-9	649	6.47	1.24	(3)-(4)	-2.448	422.3	.015
4=UPPERSEC	230	6.70	1.18				
TOTAL	1920	6.54	1.19				

Analysis of Variance: F(3,1916) = 2.086, p = .1001, Eta = .06
Homogeneity of Variances: Cochran's C = .2735, p = .193

Variable V63 ECONOPTI Optimism - employment and income level

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	461	7.49	1.55	(1&2)-(3&4)	8.146	922.2	.000
2=COMPR4-6	577	7.25	1.51	(1)-(2)	2.454	975.2	.014
3=COMPR7-9	648	6.70	1.82	(3)-(4)	-.135	441.6	.893
4=UPPERSEC	232	6.71	1.67				
TOTAL	1918	7.06	1.68				

Analysis of Variance: F(3,1914) = 26.486, p = .0000, Eta = .20
Homogeneity of Variances: Cochran's C = .3075, p = .000

Variable V64 AUTNOPTI Optimism - freedom and autonomy in work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	4.91	1.42	(1&2)-(3&4)	5.073	982.0	.000
2=COMPR4-6	579	4.76	1.41	(1)-(2)	1.710	995.1	.087
3=COMPR7-9	651	4.60	1.44	(3)-(4)	2.142	419.2	.033
4=UPPERSEC	233	4.36	1.40				
TOTAL	1931	4.69	1.43				

Analysis of Variance: F(3,1927) = 9.155, p = .0000, Eta = .12
Homogeneity of Variances: Cochran's C = .2576, p = 1.000

Variable V65 PRESTOPT Optimism - prestige of profession

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	5.60	1.37	(1&2)-(3&4)	3.902	1051.9	.000
2=COMPR4-6	576	5.70	1.30	(1)-(2)	-1.129	980.3	.259
3=COMPR7-9	652	5.42	1.50	(3)-(4)	.504	462.3	.615
4=UPPERSEC	230	5.36	1.29				
TOTAL	1928	5.54	1.39				

Analysis of Variance: F(3,1924) = 5.717, p = .0007, Eta = .09
Homogeneity of Variances: Cochran's C = .2995, p = .001

Variable V66 PUPLACTV Pupil-oriented activity

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	461	5.50	1.28	(1&2)-(3&4)	6.130	863.3	.000
2=COMPR4-6	570	5.66	1.33	(1)-(2)	-2.019	996.6	.044
3=COMPR7-9	650	5.18	1.34	(3)-(4)	.194	387.8	.847
4=UPPERSEC	230	5.16	1.40				
TOTAL	1911	5.40	1.35				

Analysis of Variance: F(3,1907) = 16.671, p = .0000, Eta = .16
Homogeneity of Variances: Cochran's C = .2734, p = .200

Variable V67 PROFACTV Professional activity

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	8.48	1.29	(1&2)-(3&4)	-6.392	941.6	.000
2=COMPR4-6	579	8.43	1.31	(1)-(2)	.571	1006.5	.568
3=COMPR7-9	648	8.86	1.32	(3)-(4)	-.146	406.9	.884
4=UPPERSEC	232	8.88	1.32				
TOTAL	1927	8.64	1.32				

Analysis of Variance: F(3,1923) = 15.889, p = .0000, Eta = .16
Homogeneity of Variances: Cochran's C = .2532, p = 1.000

Variable V68 ORGSACTV Political and organizational activity

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	4.58	1.37	(1&2)-(3&4)	2.323	956.9	.020
2=COMPR4-6	580	5.32	1.60	(1)-(2)	-8.028	1040.2	.000
3=COMPR7-9	649	4.89	1.54	(3)-(4)	1.922	416.6	.055
4=UPPERSEC	232	4.67	1.50				
TOTAL	1927	4.92	1.54				

Analysis of Variance: F(3,1923) = 23.411, p = .0000, Eta = .19
Homogeneity of Variances: Cochran's C = .2837. p = .037

Variable V69 RECRACTV Recreation and self-development

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	428	10.55	1.48	(1&2)-(3&4)	2.811	802.2	.005
2=COMPR4-6	551	10.55	1.36	(1)-(2)	.013	878.2	,989
3=COMPR7-9	609	10.49	1.55	(3)-(4)	2.452	377.7	.015
4=UPPERSEC	219	10.18	1.59				
TOTAL	1807	10.49	1.49				

Analysis of Variance: F(3,1803) = 3.705, p = .0113, Eta = .08
Homogeneity of Variances: Cochran's C = .2807, p = .073

Variable V70 WORKANX Freedom from anxiety in work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	464	12.25	1.58	(1&2)-(3&4)	8.100	977.7	.000
2=COMPR4-6	580	12.11	1.69	(1)-(2)	1.367	1016.2	.172
3=COMPR7-9	657	11.27	1.85	(3)-(4)	-3.632	444.3	.000
4=UPPERSEC	233	11.75	1.68				
TOTAL	1934	11.81	1.77				

Analysis of Variance: F(3,1930) = 37.929, p = .0000, Eta = .24
Homogeneity of Variances: Cochran's C = .2947, p = .004

Variable V71 FATIGUE Freedom from fatigue after work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	474	6.09	1.73	(1&2)-(3&4)	2.239	973.8	.025
2=COMPR4-6	583	6.20	1.75	(1)-(2)	-1.041	1015.8	.298
3=COMPR7-9	657	6.00	1.83	(3)-(4)	.734	426.1	.464
4=UPPERSEC	233	5.90	1.75				
TOTAL	1947	6.07	1.77				

Analysis of Variance: F(3,1943) = 2.107, p = .0974, Eta = .06
Homogeneity of Variances: Cochran's C = .2701, p = .301
Homogeneity of Variances: Cochran's C = .2701, p = .301

Variable V72 JOBSATSF Willingness to continue in teaching

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	8.30	1.34	(1&2)-(3&4)	3.130	933.7	.002
2=COMPR4-6	579	7.80	1.39	(1)-(2)	5.783	1016.7	.000
3=COMPR7-9	654	7.75	1.50	(3)-(4)	-1.397	422.7	.163
4=UPPERSEC	230	7.91	1.42				
TOTAL	1933	7.92	1.44				

Analysis of Variance: F(3,1929) = 15.116, p = .0000, Eta = .15
Homogeneity of Variances: Cochran's C = .2818, p = .051

Variable V73 WKSOCEST Social esteem in work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	472	6.59	1.04	(1&2)-(3&4)	.414	864.2	.679
2=COMPR4-6	576	6.42	1.02	(1)-(2)	2.555	1000.8	.011
3=COMPR7-9	649	6.48	1.06	(3)-(4)	-.052	388.7	.958
4=UPPERSEC	230	6.49	1.10				
TOTAL	1927	6.49	1.05				

Analysis of Variance: F(3,1923) = 2.149, p = .0921, Eta = .06
Homogeneity of Variances: Cochran's C = .2716, p = .251

Variable V74 WKTRUSTF Interpersonal confidence in work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	470	5.59	1.40	(1&2)-(3&4)	4.631	861.4	.000
2=COMPR4-6	580	5.19	1.49	(1)-(2)	4.465	1026.5	.000
3=COMPR7-9	654	5.20	1.47	(3)-(4)	2.698	387.2	.007
4=UPPERSEC	231	4.89	1.54				
TOTAL	1935	5.25	1.48				

Analysis of Variance: F(3,1931) = 13.439, p = .0000, Eta = .14
Homogeneity of Variances: Cochran's C = .2735, p = .192

Variable V75 WSELFEST Self-esteem in work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	472	5.67	1.33	(1&2)-(3&4)	1.080	901.4	.280
2=COMPR4-6	583	5.69	1.31	(1)-(2)	-.234	999.0	.815
3=COMPR7-9	654	5.61	1.33	(3)-(4)	.144	394.1	.886
4=UPPERSEC	230	5.60	1.36				
TOTAL	1939	5.65	1.33				

Analysis of Variance: F(3,1935) = .457, p = .7123, Eta = .03
Homogeneity of Variances: Cochran's C = .2596, p = .971

Variable V76 WMEANING Meaningfulness of work

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	473	6.32	1.18	(1&2)-(3&4)	3.504	800.4	.000
2=COMPR4-6	581	6.05	1.21	(1)-(2)	3.696	1019.8	.000
3=COMPR7-9	654	5.86	1.33	(3)-(4)	-1.871	389.7	.062
4=UPPERSEC	230	6.06	1.38				
TOTAL	1938	6.06	1.28				

Analysis of Variance: F(3,1934) = 12.007, p = .0000, Eta = .14
Homogeneity of Variances: Cochran's C = .2901, p = .010

Variable V77 HMSOCEST Social esteem in family and leisure

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	467	13.35	1.74	(1&2)-(3&4)	-1.841	922.5	.066
2=COMPR4-6	574	13.30	1.68	(1)-(2)	.513	980.6	.608
3=COMPR7-9	645	13.44	1.76	(3)-(4)	-.724	403.8	.469
4=UPPERSEC	228	13.53	1.74				
TOTAL	1914	13.39	1.73				

Analysis of Variance: F(3,1910) = 1.270, p = .2832, Eta = .04
Homogeneity of Variances: Cochran's C = .2600, p = .945

Variable V78 HMTRUSTF Interpersonal reliance in family and leisure

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	11.57	2.61	(1&2)-(3&4)	2.403	830.7	.016
2=COMPR4-6	579	11.11	2.80	(1)-(2)	2.755	1021.0	.006
3=COMPR7-9	651	11.19	2.78	(3)-(4)	1.632	377.8	.103
4=UPPERSEC	227	10.82	2.92				
TOTAL	1923	11.21	2.77				

Analysis of Variance: F(3,1919) = 4.405, p = .0043, Eta = .08
Homogeneity of Variances: Cochran's C = .2763, p = .128

Variable V79 HSELFEST Self-esteem in family and leisure

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	11.58	2.50	(1&2)-(3&4)	-1.274	903.1	.203
2=COMPR4-6	580	12.01	2.29	(1)-(2)	-2.836	958.0	.005
3=COMPR7-9	648	12.03	2.33	(3)-(4)	.876	385.7	.381
4=UPPERSEC	229	11.87	2.43				
TOTAL	1925	11.90	2.38				

Analysis of Variance: F(3,1921) = 3.827, p = .0095, Eta = .08
Homogeneity of Variances: Cochran's C = .2748, p = .160

Variable V80 HMEANING Meaningfulness of family and leisure

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	468	12.76	2.33	(1&2)-(3&4)	.531	998.2	.595
2=COMPR4-6	579	12.87	2.12	(1)-(2)	-.850	956.8	.396
3=COMPR7-9	651	12.62	2.27	(3)-(4)	-1.642	420.6	.101
4=UPPERSEC	228	12.89	2.13				
TOTAL	1926	12.76	2.22				

Analysis of Variance: F(3,1922) = 1.632, p = .1799, Eta = .05
Homogeneity of Variances: Cochran's C = .2764, p = .126

Variable V81 PSYSYMPT Freedom from psychic stress symptoms

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	461	18.03	3.49	(1&2)-(3&4)	.041	865.1	.967
2=COMPR4-6	574	18.52	3.37	(1)-(2)	-2.291	969.3	.022
3=COMPR7-9	648	18.28	3.64	(3)-(4)	.092	395.7	.927
4=UPPERSEC	230	18.26	3.71				
TOTAL	1913	18.29	3.53				

Analysis of Variance: F(3,1909) = 1.6720, p = .1716, Eta = .05
Homogeneity of Variances: Cochran's C = .2724, p = .227

Variable V82 ACHES Freedom from (muscle) aches

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	455	22.22	5.09	(1&2)-(3&4)	-3.686	1124.5	.000
2=COMPR4-6	572	22.84	4.83	(1)-(2)	-1.977	950.2	.048
3=COMPR7-9	635	22.81	5.04	(3)-(4)	-3.313	461.2	.001
4=UPPERSEC	233	23.99	4.48				
TOTAL	1895	22.82	4.95				

Analysis of Variance: F(3,1891) = 6.636, p = .0002, Eta = .10
Homogeneity of Variances: Cochran's C = .2732, p = .207

Variable V83 CIRCULAT Freedom from circulatory symptoms

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	457	25.23	4.00	(1&2)-(3&4)	-2.972	945.2	.003
2=COMPR4-6	572	25.90	3.67	(1)-(2)	-2.772	936.4	.006
3=COMPR7-9	649	25.87	3.78	(3)-(4)	-1.766	394.7	.078
4=UPPERSEC	225	26.38	3.73				
TOTAL	1903	25.79	3.81				

Analysis of Variance: F(3,1899) = 5.397, p = .0011, Eta = .09
Homogeneity of Variances: Cochran's C = .2780, p = .100

Variable V84 RESPIRAT Freedom from respiratory symptoms

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	466	11.01	2.25	(1&2)-(3&4)	-.971	956.7	.332
2=COMPR4-6	582	11.37	2.00	(1)-(2)	-2.699	938.9	.007
3=COMPR7-9	651	11.03	2.30	(3)-(4)	-3.089	428.4	.002
4=UPPERSEC	232	11.56	2.17				
TOTAL	1931	11.19	2.19				

Analysis of Variance: F(3,1927) = 5.619, p = .0008, Eta = .09
Homogeneity of Variances: Cochrans C = .2781, p = .095

Variable V85 STOMACH Freedom from stomach symptoms

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	463	7.70	1.87	(1&2)-(3&4)	-1.117	1027.9	.264
2=COMPR4-6	580	7.51	1.87	(1)-(2)	1.641	989.4	.101
3=COMPR7-9	650	7.63	1.91	(3)-(4)	-1.038	431.7	.300
4=UPPERSEC	232	7.78	1.79				
TOTAL	1925	7.63	1.87				

Analysis of Variance: F(3,1921) = 1.513, p = .2092, Eta = .05
Homogeneity of Variances: Cochran's C = .2635, p = .670

Variable V86 GENHEALT General status of health

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	471	4.02	.89	(1&2)-(3&4)	-1.098	1081.7	.273
2=COMPR4-6	584	4.15	.90	(1)-(2)	-2.417	1013.4	.016
3=COMPR7-9	657	4.11	.97	(3)-(4)	-.663	462.9	.508
4=UPPERSEC	233	4.15	.84				
TOTAL	1945	4.10	.92				

Analysis of Variance: F(3,1941) = 2.155, p = .0914, Eta = .06
Homogeneity of Variances: Cochran's C = .2878, p = .016

Variable V87 ILLNESS Health - freedom from illnesses

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	465	10.69	1.31	(1&2)-(3&4)	-3.133	1128.5	.002
2=COMPR4-6	576	11.07	1.13	(1)-(2)	-4.930	922.4	.000
3=COMPR7-9	638	10.95	1.13	(3)-(4)	-2.436	433.8	.015
4=UPPERSEC	227	11.15	1.03				
TOTAL	1906	10.95	1.18				

Analysis of Variance: F(3,1902) = 16.5064, p = .0000, Eta = .14
Homogeneity of Variances: Cochran's C = .3216, p = .000

Variable V88 MEDICINS Health - non-use of medicines

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	449	5.74	1.22	(1&2)-(3&4)	-1.056	948.7	.291
2=COMPR4-6	567	5.95	1.07	(1)-(2)	-2.927	898.6	.004
3=COMPR7-9	615	5.89	1.14	(3)-(4)	-.341	404.5	.733
4=UPPERSEC	225	5.92	1.12				
TOTAL	1856	5.87	1.14				

Analysis of Variance: F(3,1852) = 3.179, p = .0232, Eta = .07
Homogeneity of Variances: Cochran's C = .2845, p = .036

Variable V89 ABSENCES Health - low rate of sickness absences

GROUP	COUNT	MEAN	S.D.	A PRIORI COMPARISONS, T-TEST CONTRAST	T	D.F.	PROB.
1=COMPR1-3	471	8.58	1.64	(1&2)-(3&4)	-1.651	1125.4	.099
2=COMPR4-6	583	8.97	1.40	(1)-(2)	-4.065	927.5	.000
3=COMPR7-9	655	8.80	1.54	(3)-(4)	-1.727	459.1	.085
4=UPPERSEC	232	8.99	1.35				
TOTAL	1941	8.82	1.51				

Analysis of Variance: F(3,1937) = 6.848, p = .0001, Eta = .10
Homogeneity of Variances: Cochran's C = .3042, p = .000

APPENDIX 4. Relations among latent variables

Table A4.1. Direct path coefficients (inner relations matrix). Comprehensive school teachers of grades 1-3, N = 463. Decimal points omitted.

	Dependent variable									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	397	725	..	..	..	..	-224	154	172
2 REFOYEAR	..	..	..	..	..	..	..	079*	..	..
3 SCHOSIZE	..	..	..	..	..	..	..	191	-272	260
4 SEX	..	..	..	..	..	-075*	-124	..	..	..
5 AGE	..	..	..	..	..	-408	..	533	-122	..
6 FAMILY	..	..	..	..	..	..	..	123	-090*	..
7 EDUCATN	..	..	..	..	..	..	..	..	-106	..
8 PROFBGND	..	..	..	..	..	..	..	..	177	..
9 TEASUBJ	..	..	..	..	..	..	..	..	..	-356
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	..	..	..	-235	-139	..	-368	241	..	..
2 REFOYEAR	..	..	..	..	..	..	..	..	..	..
3 SCHOSIZE	..	166	..	..	-228	-204	..	..	..	106
4 SEX	-097	..	-260	-134	..	..	..	..	..	077*
5 AGE	..	..	-108	291	216	154	124	..	086	..
6 FAMILY	..	..	-287	..	..	..	..	-085	..	..
7 EDUCATN	..	107	..	..	..	..	-083	..	..	-088
8 PROFBGND	..	..	-134	..	..	..	..	..	..	..
9 TEASUBJ	488	..	..	..	..	..	133	..	..	123
10 NPUPILS	-248	159	..	..	..	..	..	..	..	-120
11 NCOURSES	..	140	-111	..	..	..	..	..	..	..
12 WORKHRS	..	..	-205	100	..	..	..	..	..	-145
13 FREETIME	..	..	..	..	..	..	..	-165	..	..

Table A4.1., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	099	..	..	228	..	..
15 STAFFREL	..	..	..	..	..	322	116	152	..	116
16 INFLUENC	..	..	..	..	..	..	..	100	358	102
17 PUPILREL	..	..	..	..	..	..	..	288	143	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	103
19 MATERSAT	..	..	..	..	..	..	..	..	..	178
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	..	..	..	..	..	..	..	..	..
2 REFOYEAR	..	..	..	-087*	..	..	..	..	..
3 SCHOSIZE	..	..	..	..	..	216	..	..	..
4 SEX	..	-084	-084*	090	-097	..	-189	-108	-133
5 AGE	-113	..	..	..	..	-109	155	-162	-304
6 FAMILY	..	..	095	103	..	096*	-081*	124	..
7 EDUCATN	..	..	..	-096	091	..	..	..	..
8 PROFBGND	..	..	..	..	..	..	..	..	..
9 TEASUBJ	-081*	-111	-076*	..	..	..	..	..	..
10 NPUPILS	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	-104	..
12 WORKHRS	-110	..	-111	..	170	..	110	..	..
13 FREETIME	..	..	161	..	..	130	..	..	..
14 SUPPAUTH	169	..	..	..	143	..	..	..	..
15 STAFFREL	..	..	175	..	..	..	..	..	..
16 INFLUENC	260	..	..	..	..	..	..	..	..
17 PUPILREL	..	300	207	..	..	146	..	109	121
18 PARNTREL	..	096	..	206	270	173	126	..	..
19 MATERSAT	110	166	168	110	..	168	..	237	167
20 SCHEDSAT	..	115	..	..	..	..	..	..	..
21 OCCUOPTI	..	110	130	121	..	154	..	176	165
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..

Dependent variable 29: HEALTH

* indicates nonsignificant paths (p >.050) retained in the model

Table A4.2. Direct path coefficients (inner relations matrix). Comprehensive school teachers of grades 4-6, N = 584. Decimal points omitted.

	Dependent variables									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	408	769	120*	..	..	112	..	..	..
2 REFOYEAR	..	..	..	082*	..	..	083*	..	..	069
3 SCHOSIZE	..	..	..	127	..	..	..	..	-136	371
4 SEX	..	..	..	..	-091	-097	200	..	-186	..
5 AGE	..	..	..	..	..	-417	..	439	..	..
6 FAMILY	..	..	..	..	..	..	..	..	..	..
7 EDUCATN	..	..	..	..	..	..	..	-286	-301	..
8 PROFBGND	..	..	..	..	..	..	..	..	147	..
9 TEASUBJ	..	..	..	..	..	..	..	..	..	-487
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	..	..	..	-200	-215	-139	-238	..	..	..
2 REFOYEAR	065	093	-104	..	..	..	-085	..	..	..
3 SCHOSIZE	-118	-058*	..	..	..	-173	..	..	..	..
4 SEX	-077	-107	-320	..	..	..	..	089	..	..
5 AGE	..	..	..	171	167	080	075*	..	099	..
6 FAMILY	..	..	-292	..	..	..	..	..	..	..
7 EDUCATN	..	..	..	..	-100	..	..	..	..	..
8 PROFBGND	046*	..	-103	..	..	..	..	070*	-144	..
9 TEASUBJ	433	183	..	..	..	..	..	..	..	..
10 NPUPILS	-364	325	..	..	..	..	..	-116	..	-209
11 NCOURSES	..	385	..	..	..	..	..	131	-134	..
12 WORKHRS	..	..	-092	..	..	-072	..	134	..	..
13 FREETIME	..	..	..	..	072*	..	..	..	119	..

Table A4.2., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	217	088	085	173	..	..
15 STAFFREL	..	..	..	..	..	291	120	121	..	..
16 INFLUENC	..	..	..	..	..	..	106	..	394	182
17 PUPILREL	..	..	..	..	..	..	..	170	111	116
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	157
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	..	..	..	..	..	..	..	..	-148
2 REFOYEAR	..	..	..	..	..	..	..	100	..
3 SCHOSIZE	..	088	106	..	..	148	..	..	..
4 SEX	..	-138	..	251	-179	-092	-264	-085*	-114
5 AGE	..	119	..	..	..	..	207	-178	-149
6 FAMILY	..	..	..	..	..	..	..	..	..
7 EDUCATN	..	..	..	-113	..	..	..	..	..
8 PROFBGND	..	-087*	..	-098	..	-134	..	..	..
9 TEASUBJ	..	-144	..	..	..	..	..	094	..
10 NPUPILS	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	092	..	..	094	..	..
13 FREETIME	..	..	078	..	..	..	-173	093	..
14 SUPPAUTH	126	088	..	..	..	-099	..	..	..
15 STAFFREL	-092*	..	157	..	-118	135	..	..	136
16 INFLUENC	161	..	157	..	..	167	..	103	..
17 PUPILREL	..	375	154	..	..	183	..	..	..
18 PARNTREL	..	101	058*	113	243	..	..	..	..
19 MATERSAT	..	..	098	102	..	..	..	213	157
20 SCHEDSAT	162	110	124	..	..	..	..	..	..
21 OCCUOPTI	..	..	157	193	..	163	..	132	129
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..

Dependent variable 29: HEALTH
* indicates nonsignificant paths (p >.050) retained in the model

Table A4.3. Direct path coefficients (inner relations matrix). Comprehensive school teachers of grades 7-9, N = 658. Decimal points omitted.

	Dependent variable									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	404	435	112	107	..	149	111	-102	..
2 REFOYEAR	..	..	-080	..	..	..	..	283	..	..
3 SCHOSIZE	..	..	..	..	..	..	..	081	..	187
4 SEX	..	..	..	..	..	-130	204	161	135	..
5 AGE	..	..	..	..	..	-430	..	103	-072*	..
6 FAMILY	..	..	..	..	..	..	135	..	..	..
7 EDUCATN	..	..	..	..	..	..	..	111	364	121
8 PROFBGND	..	..	..	..	..	..	..	..	..	300
9 TEASUBJ	..	..	..	..	..	..	..	..	..	300
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	..	..	..	..	..	..	-163	154	-083	101
2 REFOYEAR	108	..	..	..	..	..	..	..	..	..
3 SCHOSIZE	-220	..	..	-096	..	..	..	-072*	131	-082
4 SEX	-180	200	-308	-166	..	..	..	..	..	..
5 AGE	..	..	-090	..	..	117	..	060	..	..
6 FAMILY	..	..	-313	-131	..	113	..	..	..	099
7 EDUCATN	..	..	..	..	..	..	..	-074	094	..
8 PROFBGND	-107	..	..	..	120	..	093	..	..	..
9 TEASUBJ	-087	274	..	-096	138	-086	..	158	201	..
10 NPUPILS	-194	143	..	..	..	098	..	165	..	..
11 NCOURSES	..	..	072*	..	..	..	-086	144	..	-178
12 WORKHRS	..	..	-133	-091	..	..	..	..	-088	..
13 FREETIME	..	..	..	..	..	139	..	..	091	112

Table A4.3., continued

	Dependent variable									
	11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	333	126	080	379	..	-130
15 STAFFREL	..	..	..	..	..	315	206	144	..	121
16 INFLUENC	..	..	..	..	..	..	161	..	385	188
17 PUPILREL	..	..	..	..	..	..	..	262	133	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	258
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	..	..	..	..	..	..	..	..	..
2 REFOYEAR	..	..	..	..	..	..	..	..	..
3 SCHOSIZE	..	..	077	..	..	..	-098	..	..
4 SEX	..	-167	..	..	..	..	-157	-153	-143
5 AGE	-079*	095	..	..	..	..	129	-177	-210
6 FAMILY	151	..	..	..	..	..	..	..	..
7 EDUCATN	110	..	..	..	..	..	..	..	..
8 PROFBGND	-207	..	..	..	..	..	..	..	..
9 TEASUBJ	..	..	..	..	-223	..	..	..	..
10 NPUPILS	..	..	..	..	104	-121	..	-091	-139
11 NCOURSES	..	..	115	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	-111	..	..
13 FREETIME	124	..	072	-108	..	..	..	..	..
14 SUPPAUTH	128	105	..	..	195	..	106	..	..
15 STAFFREL	..	..	219	123	..	137	..	..	..
16 INFLUENC	152	..	..	..	..	..	..	..	..
17 PUPILREL	093	207	254	155	..	171	-112	086	104
18 PARNTREL	096	102	..	..	209	..	186	..	..
19 MATERSAT	..	160	140	..	..	187	..	273	211
20 SCHEDSAT	..	..	077	083	..	..	..	..	091
21 OCCUOPTI	..	..	144	177	..	127	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..

Dependent variable 29: HEALTH
* indicates nonsignificant paths (p >.050) retained in the model

Table A4.4. Direct path coefficients (inner relations matrix). Upper secondary school teachers, N = 233. Decimal points omitted.

	Dependent variable									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	508	428	..	..	..	..	..	..	..
2 REFOYEAR	..	..	..	..	205	..	..	266	..	..
3 SCHOSIZE	..	..	..	..	..	..	..	..	..	..
4 SEX	..	..	..	..	..	-273	..	..	-356	..
5 AGE	..	..	..	..	..	-142	..	348	-143	..
6 FAMILY	..	..	..	..	..	..	..	133	126	..
7 EDUCATN	..	..	..	..	..	..	..	..	-114*	..
8 PROFBGND	..	..	..	..	..	..	..	..	..	..
9 TEASUBJ	..	..	..	..	..	..	..	..	..	..
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	..	-168	..	-242	..	-131	..	..	-158	..
2 REFOYEAR	..	..	..	..	-142	..	..	..	..	..
3 SCHOSIZE	..	..	..	..	..	..	113*	..	..	..
4 SEX	..	-286	-475	-145	..	..	..	-141	..	..
5 AGE	..	-101*	..	..	..	102*	..	..	..	..
6 FAMILY	..	..	-235	..	-142	..	-112*	..	..	..
7 EDUCATN	..	..	..	143	..	..	..	..	153	..
8 PROFBGND	..	..	..	..	..	..	..	..	..	..
9 TEASUBJ	356	..	-174	..	..	..	..	135	..	..
10 NPUPILS	435	289	..	..	..	..	..	..	..	..
11 NCOURSES	..	195	..	..	..	..	..	..	..	-137
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	148	..	-135	..	..

Table A4.4., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	207	149	..	428	..	..
15 STAFFREL	..	..	..	..	..	294	212	240	..	149
16 INFLUENC	..	..	..	..	..	..	..	..	396	279
17 PUPILREL	..	..	..	..	..	..	..	185	153	..
18 PARNTREL	..	..	..	..	..	..	..	..	-124*	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	112*
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-144	..	..	129*	..	..	..	..	..
2 REFOYEAR	..	..	..	..	..	..	..	..	..
3 SCHOSIZE	..	..	096*	..	172	..	..	..	..
4 SEX	..	..	..	231	..	-118*	-286	..	-202
5 AGE	-135	105*	145	..	..	..	..	..	-184
6 FAMILY	..	..	..	..	..	167	..	..	..
7 EDUCATN	..	..	..	..	123*	103*	140	..	..
8 PROFBGND	..	..	..	..	..	..	126	-115*	-142
9 TEASUBJ	..	..	..	..	..	..	..	172	..
10 NPUPILS	..	..	..	..	..	115*	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	158	..
12 WORKHRS	-112*	..	..	193	..	..	130	..	..
13 FREETIME	..	187	125	..	..	..	..	..	..
14 SUPPAUTH	..	111*	..	..	..	..	..	..	..
15 STAFFREL	..	..	179	..	..	..	..	..	190
16 INFLUENC	178	..	-133	188	..	..	..	..	..
17 PUPILREL	124*	382	204	180	..	265	..	171	..
18 PARNTREL	..	..	226	132*	312	150	202	..	..
19 MATERSAT	178	144	..	..	..	..	..	..	119*
20 SCHEDSAT	..	141	195	..	-154	175	..	217	..
21 OCCUOPTI	..	..	280	215	..	114*	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..

Dependent variable 29: HEALTH
* indicates nonsignificant paths (p >.060) retained in the model

Table A4.5. Total path coefficients (reduced forms matrix), proportions of variance explained, and residual standard deviations. Comprehensive school teachers of grades 1-3, N = 463. Decimal points omitted.

	Dependent variable									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	397	725	..	..	..	..	-055	-052	379
2 REFOYEAR	..	..	..	..	..	..	..	079	014	-005
3 SCHOSIZE	..	..	..	..	..	..	..	191	-238	345
4 SEX	..	..	..	..	..	-075	-124	-009	018	-007
5 AGE	..	..	..	..	..	-408	..	483	001	-000
6 FAMILY	..	..	..	..	..	..	..	123	-068	024
7 EDUCATN	..	..	..	..	..	..	..	..	-106	038
8 PROFBGND	..	..	..	..	..	..	..	..	177	-063
9 TEASUBJ	..	..	..	..	..	..	..	..	..	-356
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	..	157	525	..	..	176	015	271	072	327
R-square	..	157	525	..	..	176	015	271	072	327
Res stand dev	..	918	689	..	..	908	992	854	963	821

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-119	164	-013	-219	-326	-253	-413	-001	-150	-089
2 REFOYEAR	008	..	-012	..	..	..	002	002	..	003
3 SCHOSIZE	-202	192	-043	019	-226	-277	-058	-067	-107	-073
4 SEX	-086	-026	-222	-136	-013	-004	011	013	..	094
5 AGE	..	..	-056	291	245	233	152	215	191	108
6 FAMILY	-039	-002	-299	-000	..	..	-009	-039	-001	-015
7 EDUCATN	-061	104	-015	010	001	..	-097	-023	-014	-125
8 PROFBGND	102	004	-146	..	..	..	023	031	003	032
9 TEASUBJ	576	024	-069	002	..	..	133	050	019	170
10 NPUPILS	-248	124	002	012	001	..	..	003	..	-137
11 NCOURSES	..	140	-140	014	001	..	..	027	..	-017
12 WORKHRS	..	..	-205	100	010	003	001	059	001	-137
13 FREETIME	..	..	..	..	..	..	..	-165	..	-017
R-square	395	081	192	142						
Res stand dev	778	956	899	926						

Table A4.5., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	099	032	011	249	013	043
15 STAFFREL	..	..	..	..	..	322	116	217	132	194
16 INFLUENC	..	..	..	..	..	..	..	100	358	176
17 PUPILREL	..	..	..	..	..	..	..	288	143	055
18 PARNTREL	..	..	..	..	..	..	..	..	..	103
19 MATERSAT	..	..	..	..	..	..	..	..	..	178
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	395	086	192	142	194	236	238	245	198	228
Res stand dev	778	956	899	926	898	874	873	869	896	878

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-133	-168	-201	-067	-004	049	018	-091	-097
2 REFOYEAR	-001	-001	-003	-086	001	-001	..	-001	..
3 SCHOSIZE	-083	-033	-091	-036	017	160	013	-025	-039
4 SEX	-023	-073	-128	094	-129	-036	-184	-111	-135
5 AGE	017	112	061	025	099	-061	215	-148	-251
6 FAMILY	006	-000	051	096	-011	050	-086	128	-000
7 EDUCATN	-003	-036	-028	-103	104	-023	009	-008	-014
8 PROFBGND	-014	-007	-034	005	009	-012	004	-010	001
9 TEASUBJ	-081	-053	-069	003	018	010	009	-055	006
10 NPUPILS	-011	-017	-015	-001	024	-001	014	024	-002
11 NCOURSES	-013	-001	-039	004	033	-016	019	-106	-002
12 WORKHRS	-092	-020	-154	001	200	-030	118	-016	-015
13 FREETIME	..	-018	161	-034	-045	102	-021	..	..
14 SUPPAUTH	178	054	045	074	210	074	031	036	033
15 STAFFREL	098	111	234	071	059	092	027	061	052
16 INFLUENC	299	122	099	096	027	123	013	137	109
17 PUPILREL	016	360	233	077	078	223	036	146	147
18 PARNTREL	..	108	..	206	270	173	126	..	..
19 MATERSAT	110	199	182	123	..	185	..	256	186
20 SCHEDSAT	..	115	..	..	..	..	..	..	..
21 OCCUOPTI	..	110	130	121	..	154	..	176	165
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..
R-square	160	243	274	135	172	179	107	190	175
Res stand dev	917	870	852	930	910	906	945	900	908

Dependent variable 29: HEALTH

Table A4.6. Total path coefficients (reduced forms matrix), proportions of variance explained, and residual standard deviations. Comprehensive school teachers of grades 4-6, N = 584. Decimal points omitted.

	Dependent variable									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	408	769	251	-023	-015	197	-066	-221	421
2 REFOYEAR	..	..	..	082	-007	-005	100	-032	-050	094
3 SCHOSIZE	..	..	..	127	-012	-007	025	-012	-169	453
4 SEX	..	..	..	..	-091	-059	200	-097	-261	127
5 AGE	..	..	..	..	..	-417	..	439	065	-031
6 FAMILY	..	..	..	..	..	..	..	..	..	..
7 EDUCATN	..	..	..	..	..	..	..	-286	-343	167
8 PROFBGND	..	..	..	..	..	..	..	..	147	-072
9 TEASUBJ	..	..	..	..	..	..	..	..	..	-487
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	..	166	591	076	008	176	084	295	258	490
Res stand dev	..	913	639	961	996	908	957	840	861	714

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-335	-066	-106	-203	-290	-371	-366	-216	-147	-221
2 REFOYEAR	002	106	-135	-001	-021	-015	-090	-009	-028	-037
3 SCHOSIZE	-366	-096	-028	-002	-007	-169	-020	-108	-022	-131
4 SEX	-240	-206	-274	-016	-058	-011	-016	-004	-001	-031
5 AGE	060	025	074	171	209	154	131	122	112	067
6 FAMILY	..	..	-292	..	-021	-006	-003	-003	-037	-007
7 EDUCATN	-223	-094	038	..	-097	-021	-014	-095	066	-030
8 PROFBGND	136	056	-108	..	-008	-006	-002	103	-178	-014
9 TEASUBJ	610	260	-024	..	-002	-019	-002	171	-092	083
10 NPUPILS	-364	185	-017	..	-001	-014	-002	-139	041	-205
11 NCOURSES	..	385	-035	..	-003	-029	-003	182	-150	-029
12 WORKHRS	..	..	-092	..	-007	-074	-009	132	-041	-021
13 FREETIME	..	..	..	..	072	021	011	011	128	025
R-square	631	192	190	072						
Res stand dev	608	899	900	964						

Table A4.6., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	217	151	127	221	073	054
15 STAFFREL	..	..	..	..	..	291	151	146	131	091
16 INFLUENC	..	..	..	..	..	..	106	018	406	258
17 PUPILREL	..	..	..	..	..	..	..	170	111	134
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	157
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	631	192	190	072	196	281	205	246	230	188
Res stand dev	608	899	900	964	896	848	892	868	877	901

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-094	-133	-156	-016	-063	-064	-059	-089	-248
2 REFOYEAR	-007	-041	-039	017	-014	-026	010	069	-016
3 SCHOSIZE	-048	062	041	-002	-048	097	-040	-056	-023
4 SEX	-003	-114	-039	218	-173	-090	-254	-120	-109
5 AGE	038	155	115	-008	005	008	196	-120	-098
6 FAMILY	-000	-002	-032	-004	002	-004	051	-036	-009
7 EDUCATN	001	056	-021	-098	-012	019	-015	-017	-003
8 PROFBGND	-003	-101	-025	-100	026	-137	024	-035	-029
9 TEASUBJ	011	-119	007	036	042	-002	029	071	-013
10 NPUPILS	-035	-037	-039	-001	-034	-008	020	001	002
11 NCOURSES	-009	014	-017	039	045	-007	042	-039	-025
12 WORKHRS	-015	008	-022	100	033	-017	110	-027	-009
13 FREETIME	001	008	111	014	-006	015	-173	122	030
14 SUPPAUTH	139	163	126	059	028	001	..	050	059
15 STAFFREL	-031	081	253	024	-083	206	..	054	153
16 INFLUENC	203	070	278	082	004	219	..	216	090
17 PUPILREL	022	407	195	035	041	187	..	027	020
18 PARNTREL	..	101	058	113	243	..	..	..	..
19 MATERSAT	025	017	121	107	..	004	..	216	160
20 SCHEDSAT	162	110	149	031	..	026	..	021	021
21 OCCUOPTI	..	..	157	193	..	163	..	132	129
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..
R-square	083	239	275	142	091	143	141	159	143
Res stand dev	958	872	851	926	954	926	927	917	926

Dependent variable 29: HEALTH

Table A4.7. Total path coefficients (reduced forms matrix), proportions of variance explained, and residual standard deviations. Comprehensive school teachers of grades 7-9, N = 658. Decimal points omitted.

	Dependent variable 1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	404	402	112	107	-061	163	305	-035	176
2 REFOYEAR	..	..	-080	..	..	..	..	276	..	068
3 SCHOSIZE	..	..	..	..	..	..	..	081	..	212
4 SEX	..	..	..	..	..	-130	187	181	203	138
5 AGE	..	..	..	..	..	-430	-058	096	-093	-006
6 FAMILY	..	..	..	..	..	..	135	015	049	036
7 EDUCATN	..	..	..	..	..	..	..	111	364	263
8 PROFBGND	..	..	..	..	..	..	..	..	..	300
9 TEASUBJ	..	..	..	..	..	..	..	..	..	300
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	..	164	167	012	012	197	081	218	179	315
Res stand dev	..	915	913	994	994	896	959	884	906	828

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-129	038	-039	-049	015	019	-121	076	-038	082
2 REFOYEAR	082	010	005	007	035	019	029	044	..	-000
3 SCHOSIZE	-269	030	-023	-099	-023	-002	018	-112	128	006
4 SEX	-244	275	-322	-193	-014	-092	005	-068	-030	-007
5 AGE	-001	-026	048	068	021	098	035	086	025	-019
6 FAMILY	-013	019	-316	-137	-037	039	-010	-058	006	088
7 EDUCATN	-095	137	-025	-047	048	..	025	009	156	066
8 PROFBGND	-165	043	-018	-004	119	064	141	078	038	064
9 TEASUBJ	-145	316	-053	-125	097	-049	014	158	151	078
10 NPUPILS	-194	143	-033	-013	-004	091	029	139	023	055
11 NCOURSES	..	..	072	..	..	010	-085	122	-001	-168
12 WORKHRS	..	..	-133	-091	-030	-040	-020	-044	-118	-044
13 FREETIME	..	..	..	..	..	139	022	006	148	176
R-square	218	195	207	012						
Res stand dev	884	897	891	954						

Table A4.7., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	333	231	185	475	114	-017
15 STAFFREL	..	..	..	..	..	315	256	211	155	220
16 INFLUENC	..	..	..	..	..	..	161	042	406	293
17 PUPILREL	..	..	..	..	..	..	..	262	133	034
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	258
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	218	195	207	090	124	186	150	388	278	239
Res stand dev	884	897	891	954	936	902	922	783	850	873

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-075	-037	-024	-019	032	-056	-025	-073	-076
2 REFOYEAR	-046	011	012	..	018	-004	012	-004	-006
3 SCHOSIZE	-042	002	056	-004	-021	-007	-135	017	..
4 SEX	-121	-198	-075	012	-083	-039	-221	-173	-169
5 AGE	-130	122	..	-022	051	-002	151	-166	-202
6 FAMILY	106	-021	-012	054	-046	003	-026	-003	003
7 EDUCATN	081	026	043	032	-061	018	-021	021	005
8 PROFBGND	-180	043	026	012	047	-011	-006	-005	-013
9 TEASUBJ	-013	030	030	024	-183	006	-021	015	-001
10 NPUPILS	024	023	-007	016	130	-109	005	-082	-126
11 NCOURSES	014	-005	088	-032	025	-013	032	-008	-024
12 WORKHRS	-040	-037	-047	-003	-027	-035	-127	-034	-031
13 FREETIME	147	029	133	-063	001	050	-001	042	050
14 SUPPAUTH	226	211	167	108	294	127	174	047	042
15 STAFFREL	092	100	336	197	044	222	011	064	080
16 INFLUENC	171	103	145	080	009	125	-010	125	129
17 PUPILREL	119	255	292	179	055	211	-063	122	135
18 PARNTREL	096	102	014	017	209	012	186	..	..
19 MATERSAT	..	160	160	022	..	187	..	273	235
20 SCHEDSAT	..	..	077	083	..	..	..	..	091
21 OCCUOPTI	..	..	144	177	..	127	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..
R-square	191	201	292	118	163	165	162	144	160
Res stand dev	899	894	841	939	915	914	915	925	916

Dependent variable 29: HEALTH

Table A4.8. Total path coefficients (reduced forms matrix), proportions of variance explained, and residual standard deviations. Upper secondary school teachers, N = 233. Decimal points omitted.

	Dependent variable									
	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	..	508	428	..	104	-015	..	170	-017	..
2 REFOYEAR	..	..	..	..	205	-029	..	334	-033	..
3 SCHOSIZE	..	..	..	..	..	..	..	..	..	..
4 SEX	..	..	..	..	..	-273	..	-036	-391	..
5 AGE	..	..	..	..	..	-142	..	330	-160	..
6 FAMILY	..	..	..	..	..	..	..	133	126	..
7 EDUCATN	..	..	..	..	..	..	..	..	-114	..
8 PROFBGND	..	..	..	..	..	..	..	..	..	..
9 TEASUBJ	..	..	..	..	..	..	..	..	..	..
10 NPUPILS	..	..	..	..	..	..	..	..	..	..
11 NCOURSES	..	..	..	..	..	..	..	..	..	..
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	..	..	..	..	..
14 SUPPAUTH	..	..	..	..	..	..	..	..	..	..
15 STAFFREL	..	..	..	..	..	..	..	..	..	..
16 INFLUENC	..	..	..	..	..	..	..	..	..	..
17 PUPILREL	..	..	..	..	..	..	..	..	..	..
18 PARNTREL	..	..	..	..	..	..	..	..	..	..
19 MATERSAT	..	..	..	..	..	..	..	..	..	..
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	..	258	183	..	042	096	..	239	213	..
Res stand dev	..	861	904	..	979	951	..	872	887	..

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-006	-179	006	-242	-120	-191	024	-131	-213	-094
2 REFOYEAR	-012	-023	013	..	-138	-018	-026	-044	-006	-025
3 SCHOSIZE	..	..	..	..	..	..	113	021	015	002
4 SEX	-139	-313	-343	-145	009	-070	032	-202	002	001
5 AGE	-057	-112	061	..	020	117	020	-021	052	049
6 FAMILY	045	009	-257	..	-142	-080	-142	-009	-052	-055
7 EDUCATN	-041	-008	020	143	030	033	006	051	160	037
8 PROFBGND	..	..	..	..	..	..	..	..	..	..
9 TEASUBJ	356	069	-174	..	..	-026	..	158	-030	-059
10 NPUPILS	435	374	..	..	..	..	..	..	..	-059
11 NCOURSES	..	195	..	..	..	..	..	..	..	-137
12 WORKHRS	..	..	..	..	..	..	..	..	..	..
13 FREETIME	..	..	..	..	..	148	..	-135	075	050
R-square	336	342	204	102						
Res stand dev	815	811	892	947						

Table A4.8., continued

	Dependent variable 11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	..	..	..	..	207	210	044	485	029	093
15 STAFFREL	..	..	..	..	..	294	212	279	114	244
16 INFLUENC	..	..	..	..	..	..	..	..	396	324
17 PUPILREL	..	..	..	..	..	..	..	185	130	015
18 PARNTREL	..	..	..	..	..	..	..	..	-124	-014
19 MATERSAT	..	..	..	..	..	..	..	..	..	112
20 SCHEDSAT	..	..	..	..	..	..	..	..	..	..
21 OCCUOPTI	..	..	..	..	..	..	..	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..	..
R-square	336	342	204	102	090	197	077	408	220	183
Res stand dev	815	811	892	947	954	896	961	770	883	904

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-207	-049	-040	001	047	-056	-028	-040	-091
2 REFOYEAR	-032	010	-020	-025	-010	-026	030	-056	-112
3 SCHOSIZE	017	045	129	027	178	035	004	020	002
4 SEX	027	-068	-063	143	-063	-182	-372	-079	-195
5 AGE	-090	139	124	-018	-014	-023	023	-060	-221
6 FAMILY	-042	-118	-101	-049	006	114	016	-023	-052
7 EDUCATN	036	050	034	020	134	123	150	-017	025
8 PROFBGND	..	..	..	..	..	..	126	-115	-142
9 TEASUBJ	-018	-045	001	026	058	011	041	215	-004
10 NPUPILS	-042	-008	-023	063	009	100	048	056	..
11 NCOURSES	-022	-019	-033	033	021	-026	025	128	..
12 WORKHRS	-112	..	-031	169	..	-013	130	..	..
13 FREETIME	040	205	096	018	-050	-007	-027	011	009
14 SUPPAUTH	048	145	159	122	137	106	098	028	043
15 STAFFREL	099	132	321	151	049	152	056	089	203
16 INFLUENC	248	103	-000	241	-050	085	..	070	047
17 PUPILREL	147	403	289	236	055	312	037	174	015
18 PARNTREL	-022	-020	217	128	314	145	202	-003	-015
19 MATERSAT	178	159	072	038	-017	040	..	024	119
20 SCHEDSAT	..	141	195	..	-154	175	..	217	..
21 OCCUOPTI	..	..	280	215	..	114	..	..	..
22 WKFACIL	..	..	..	..	..	..	..	..	..
23 PSYWORK	..	..	..	..	..	..	..	..	..
24 JOBSATSF	..	..	..	..	..	..	..	..	..
25 PROFACTV	..	..	..	..	..	..	..	..	..
26 PSYHOME	..	..	..	..	..	..	..	..	..
27 LEISACTV	..	..	..	..	..	..	..	..	..
28 PSYSOM	..	..	..	..	..	..	..	..	..
R-square	163	322	389	235	143	258	227	164	180
Res stand dev	915	823	782	874	926	861	879	914	906

Dependent variable 29: HEALTH

Table A4.9. Correlations among latent variables. Comprehensive school teachers of grades 1-3, N = 463.

	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	1000	397	725	-106	030	-010	103	-040	-063	383
2 REFOYEAR	397	1000	306	-011	024	-024	060	058	010	151
3 SCHOSIZE	725	306	1000	-112	022	-002	102	064	-162	442
4 SEX	-106	-011	-112	1000	066	-102	-124	017	082	-102
5 AGE	030	024	022	066	1000	-412	-015	482	001	011
6 FAMILY	-010	-024	-002	-102	-412	1000	003	-096	-059	030
7 EDUCATN	103	060	102	-124	-015	003	1000	-054	-126	079
8 PROF BGND	-040	058	064	017	482	-096	-054	1000	110	-009
9 TEASUBJ	-063	010	-162	082	001	-059	-126	110	1000	-409
10 NPUPILS	383	151	442	-102	011	030	079	-009	-409	1000
11 NCOURSES	-053	-022	-135	-032	-035	013	-062	040	581	-438
12 WORKHRS	209	081	228	-121	-053	002	128	023	-028	179
13 FREETIME	-029	-068	-015	-212	-056	-205	-017	-172	-110	016
14 SUPPAUTH	-191	-100	-160	-102	269	-058	012	163	052	-109
15 STAFFREL	-317	-106	-340	090	233	-075	-072	101	037	-210
16 INFLUENC	-249	-119	-311	103	225	-063	-056	100	080	-196
17 PUPILREL	-418	-127	-350	105	141	-034	-148	068	171	-271
18 PARNTREL	010	042	-063	065	210	-095	-036	164	113	-089
19 MATERSAT	-116	-086	-190	046	187	-010	-092	097	026	-106
20 SCHEDSAT	-094	-001	-129	152	148	-076	-164	063	205	-236
21 OCCUOPTI	-163	-105	149	032	017	026	-007	-036	-045	-046
22 WKFACIL	-175	-114	-121	-026	113	-049	-094	-015	-033	-138
23 PSYWORK	-179	-105	-138	-071	-024	057	-059	-054	-063	-088
24 JOBSATSF	-134	-109	-135	115	044	078	-131	051	053	-044
25 PROF ACTV	-097	-080	-095	-126	006	-022	117	003	-042	-032
26 PSYHOME	035	022	095	-030	-060	095	-016	-023	-055	056
27 LEISACTV	023	038	-013	-175	197	-137	026	095	-044	-006
28 PSYSOM	004	039	045	-100	-154	199	-057	-058	-079	084
29 HEALTH	-092	-026	-051	-127	-262	192	-032	-130	-034	-001

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-053	209	-029	-191	-317	-249	-418	010	-116	-094
2 REFOYEAR	-022	081	-068	-100	-106	-119	-127	042	-086	-001
3 SCHOSIZE	-135	228	-015	-160	-340	-311	-350	-063	-190	-129
4 SEX	-032	-121	-212	-102	090	103	105	065	046	152
5 AGE	-035	-053	-056	269	233	225	141	210	187	148
6 FAMILY	013	002	-205	-058	-075	-063	-034	-095	-010	-076
7 EDUCATN	-062	128	-017	012	-072	-056	-148	-036	-092	-164
8 PROF BGND	040	023	-172	163	101	100	068	164	097	063
9 TEASUBJ	581	-028	-110	052	037	080	171	113	026	205
10 NPUPILS	-438	179	016	-109	-210	-196	-271	-089	-106	-236
11 NCOURSES	1000	042	-117	046	037	025	140	099	017	116
12 WORKHRS	042	1000	-176	052	-062	-129	-161	-015	-121	-210
13 FREETIME	-117	-176	1000	-042	023	024	027	-151	042	-003

Table A4.9., continued

	11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	046	052	-042	1000	220	206	161	294	153	097
15 STAFFREL	037	-062	023	220	1000	428	272	250	267	248
16 INFLUENC	025	-129	024	206	428	1000	239	222	411	279
17 PUPILREL	140	-161	027	161	272	239	1000	288	241	172
18 PARNTREL	099	-015	-151	294	250	222	288	1000	195	217
19 MATERSAT	017	-121	042	153	267	411	241	195	1000	296
20 SCHEDSAT	116	-210	-003	097	248	279	172	217	296	1000
21 OCCUOPTI	-041	-140	047	199	181	322	134	151	233	159
22 WKFACIL	-011	-117	096	093	202	239	375	238	310	219
23 PSYWORK	-053	-210	210	093	293	200	310	149	308	187
24 JOBSATSF	-026	-053	-056	102	189	176	186	242	197	130
25 PROF ACTV	024	197	-045	242	091	034	045	300	025	-025
26 PSYHOME	-072	-001	106	036	075	101	167	206	216	101
27 LEISACTV	-033	123	002	147	040	036	-007	152	057	-054
28 PSYSOM	-081	-118	152	-038	096	113	137	089	266	084
29 HEALTH	-004	-071	026	-008	063	104	126	058	172	023

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-163	-175	-179	-134	-097	035	023	004	-092
2 REFOYEAR	-105	-114	-105	-109	-080	022	038	039	-026
3 SCHOSIZE	-149	-121	-138	-135	-095	095	-013	045	-051
4 SEX	032	-026	-071	115	-126	-030	-175	-100	-127
5 AGE	017	113	-024	044	006	-060	197	-154	-262
6 FAMILY	026	-049	057	078	-022	095	-137	199	192
7 EDUCATN	-007	-094	-059	-131	117	-016	026	-057	-032
8 PROFBGND	-036	-015	-054	051	003	-023	095	-058	-130
9 TEASUBJ	-045	-033	-063	053	-042	-055	-044	-079	-034
10 NPUPILS	-046	-138	-088	-044	-032	056	-006	084	-001
11 NCOURSES	-041	-011	-053	-026	024	-072	-033	-081	-004
12 WORKHRS	-140	-117	-210	-053	197	-001	123	-118	-071
13 FREETIME	047	096	210	-056	-045	106	002	152	026
14 SUPPAUTH	199	093	093	102	242	036	147	-038	-008
15 STAFFREL	181	202	293	189	091	075	040	096	063
16 INFLUENC	322	239	200	176	034	101	036	113	104
17 PUPILREL	134	375	310	186	045	167	-007	137	126
18 PARNTREL	151	238	149	242	300	206	152	089	058
19 MATERSAT	233	310	308	197	025	216	057	266	172
20 SCHEDSAT	159	219	187	130	-025	101	-054	084	023
21 OCCUOPTI	1000	224	255	193	072	213	052	247	210
22 WKFACIL	224	1000	484	210	109	385	079	280	198
23 PSYWORK	255	484	1000	251	052	487	101	464	377
24 JOBSATSF	193	210	251	1000	154	252	025	245	133
25 PROF ACTV	072	109	052	154	1000	075	341	005	-012
26 PSYHOME	213	385	487	252	075	1000	115	611	439
27 LEISACTV	052	079	101	025	341	115	1000	-022	019
28 PSYSOM	247	280	464	245	005	611	-022	1000	570
29 HEALTH	210	198	377	133	-012	439	019	570	1000

Table A4.10. Correlations among latent variables. Comprehensive school teachers of grades 4-6, N = 584. Decimal points omitted.

	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	1000	408	769	251	-040	-009	197	-132	-214	440
2 REFOYEAR	408	1000	342	175	-078	-035	164	-142	-117	253
3 SCHOSIZE	769	342	1000	248	-062	-020	133	-104	-238	510
4 SEX	251	175	248	1000	-091	-059	243	-173	-318	263
5 AGE	-040	-078	-062	-091	1000	-408	-081	462	110	-112
6 FAMILY	-009	-035	-020	-059	-408	1000	006	-082	-042	034
7 EDUCATN	197	164	133	243	-081	006	1000	-322	-412	281
8 PROFBGND	-132	-142	-104	-173	462	-082	-322	1000	290	-162
9 TEASUBJ	-214	-117	-238	-318	110	-042	-412	290	1000	-583
10 NPUPILS	440	253	510	263	-112	034	281	-162	-583	1000
11 NCOURSES	-369	-138	-408	-336	079	-030	-330	247	703	-688
12 WORKHRS	-028	062	-087	-208	-022	033	-158	125	302	-081
13 FREETIME	-138	-140	-107	-284	064	-264	-066	-021	094	-094
14 SUPPAUTH	-206	-140	-175	-138	179	001	-129	164	118	-162
15 STAFFREL	-296	-142	-271	-141	227	-045	-189	215	157	-203
16 INFLU ENC	-377	-198	-373	-174	179	-041	-121	153	088	-207
17 PUPILREL	-369	-238	-271	-080	152	-058	-157	319	189	-246
18 PARNTREL	-182	-100	-188	-080	153	-058	-188	231	225	-299
19 MATERSAT	-088	-101	-106	004	117	-037	043	-038	-016	-036
20 SCHEDSAT	-145	-077	-165	-074	113	-045	-076	047	171	-281
21 OCCUOPTI	-040	-016	-025	020	034	-072	-052	-020	029	-071
22 WKFAC IL	-094	-104	-064	-125	171	-038	-050	103	-011	-091
23 PSYWORK	-127	-073	-091	-035	047	040	-102	025	031	-099
24 JOBSATSF	022	021	015	217	-055	008	-062	-075	-007	-048
25 PROFACTV	-146	-065	-155	-182	-019	-015	-080	045	167	-186
26 PSYHOME	-059	-040	004	-078	-031	032	002	-040	018	-029
27 LEISACTV	-120	-084	-128	-253	217	014	-150	147	120	-108
28 PSYSOM	-042	031	-049	-122	-114	-039	-061	-059	108	-027
29 HEALTH	-230	-059	-161	-154	-079	039	-052	-010	115	-097

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-369	-028	-138	-206	-296	-377	-369	-182	-088	-145
2 REFOYEAR	-138	062	-140	-140	-142	-198	-238	-100	-101	-077
3 SCHOSIZE	-408	-087	-107	-175	-271	-373	-271	-188	-106	-165
4 SEX	-336	-208	-284	-138	-141	-174	-080	-080	004	-074
5 AGE	079	-022	064	179	227	179	152	153	117	113
6 FAMILY	-030	033	-264	001	-045	-041	-058	-058	-037	-045
7 EDUCATN	-330	-158	-066	-129	-189	-121	-157	-188	043	-076
8 PROFBGND	247	125	-021	164	215	153	319	231	-038	047
9 TEASUBJ	703	302	094	118	157	088	189	225	-016	171
10 NPUPILS	-688	-081	-094	-162	-203	-207	-246	-299	-036	-281
11 NCOURSES	1000	337	046	129	169	177	239	327	-060	195
12 WORKHRS	337	1000	-054	-012	-016	-061	025	178	-143	-016
13 FREETIME	046	-054	1000	053	130	130	112	-018	186	085

Table A4.10., continued

	11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	129	-012	053	1000	308	251	223	281	167	154
15 STAFFREL	169	-016	130	308	1000	425	290	269	207	244
16 INFLUENC	177	-061	130	251	425	1000	298	161	415	325
17 PUPILREL	239	025	112	223	290	298	1000	321	179	250
18 PARNTREL	327	178	-018	281	269	161	321	1000	054	093
19 MATERSAT	-060	-143	186	167	207	415	179	054	1000	261
20 SCHEDSAT	195	-016	085	154	244	325	250	093	261	1000
21 OCCUOPTI	034	-034	045	163	055	206	117	042	149	211
22 WKFACIL	026	-009	108	210	210	175	404	216	137	207
23 PSYWORK	051	-014	160	197	324	363	312	177	285	305
24 JOBSATSF	025	045	-053	070	008	074	070	121	123	127
25 PROFACTV	246	178	-022	086	-028	003	053	226	-096	028
26 PSYHOME	018	-047	133	016	181	228	194	076	184	169
27 LEISACTV	141	153	-090	072	011	048	011	061	-004	026
28 PSYSOM	035	-055	159	040	123	202	061	-006	259	135
29 HEALTH	072	-014	116	045	202	245	139	017	200	159

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-040	-094	-127	022	-146	-059	-120	-042	-230
2 REFOYEAR	-016	-104	-073	021	-065	-040	-084	031	-059
3 SCHOSIZE	-025	-064	-091	015	-155	004	-128	-049	-161
4 SEX	020	-125	-035	217	-182	-078	-253	-122	-154
5 AGE	034	171	047	-055	-019	-031	217	-114	-079
6 F AMILY	-072	-038	040	008	-015	032	014	-039	039
7 EDUCATN	-052	-050	-102	-062	-080	002	-150	-061	-052
8 PROF BGND	-020	103	025	-075	045	-040	147	-059	-010
9 TEASUBJ	029	-011	031	-007	167	018	120	108	115
10 NPUPILS	-071	-091	-099	-048	-186	-029	-108	-027	-097
11 NCOURSES	034	026	051	025	246	018	141	035	072
12 WORKHRS	-034	-009	-014	045	178	-047	153	-055	-014
13 F REETIME	045	108	160	-053	-022	133	-090	159	116
14 SUPPAUTH	163	210	197	070	086	016	072	040	045
15 STAFFREL	055	210	324	008	-028	181	011	123	202
16 INFLUENC	206	175	363	074	003	228	048	202	245
17 PUPILREL	117	404	312	070	053	194	011	061	139
18 PARNTREL	042	216	177	121	226	076	061	-006	017
19 MATERSAT	149	137	285	123	-096	184	-004	259	200
20 SCHEDSAT	211	207	305	127	028	169	026	135	159
21 OCCUOPT I	1000	113	260	223	053	207	-001	183	159
22 WKFACIL	113	1000	402	173	086	306	036	035	048
23 PSYWORK	260	402	1000	272	057	561	022	279	295
24 JOBSATSF	223	173	272	1000	125	155	-034	116	055
25 PROF ACTV	053	086	057	125	1000	053	122	-077	-079
26 PSYHOME	207	306	561	155	053	1000	-001	441	353
27 LEISACTV	-001	036	022	-034	122	-001	1000	-017	034
28 PSYSOM	183	035	279	116	-077	441	-017	1000	403
29 HEALTH	159	048	295	055	-079	353	034	403	1000

Table A4.11. Correlations among latent variables. Comprehensive school teachers of grades 7-9, N = 658. Decimal points omitted.

		1	2	3	4	5	6	7	8	9	10
1	COMMUNTY	1000	404	402	112	107	-054	164	305	-035	203
2	REFOYEAR	404	1000	096	079	010	002	113	362	-017	151
3	SCHOSIZE	402	096	1000	070	064	-030	089	181	-001	252
4	SEX	112	079	070	1000	-049	-108	206	219	202	143
5	AGE	107	010	064	-049	1000	-424	-089	105	-122	-058
6	FAMILY	-054	002	-030	-108	-424	1000	105	-007	039	044
7	EDUCATN	164	113	089	206	-089	105	1000	192	382	310
8	PROFBGND	305	362	181	219	105	-007	192	1000	108	389
9	TEASUBJ	-035	-017	-001	202	-122	039	382	108	1000	378
10	NPUPILS	203	151	252	143	-058	044	310	389	378	1000
11	NCOURSES	-097	006	-290	-255	042	034	-163	-232	-210	-334
12	WORKHRS	040	093	034	275	-062	-046	229	133	368	275
13	FREETIME	-054	-064	-034	-325	069	-233	-139	-149	-095	-125
14	SUPPAUTH	-103	-086	-107	-203	129	-109	-115	-105	-168	-159
15	STAFFREL	031	-020	-018	-000	029	007	060	100	095	040
16	INFLUENC	-000	059	-020	-116	109	020	048	071	-063	039
17	PUPILREL	-128	-068	-044	026	017	-058	-015	087	044	071
18	PARNTREL	065	054	-067	-049	113	-091	-011	090	112	128
19	MATERSAT	-048	-013	086	-007	024	-003	152	067	180	138
20	SCHEDSAT	078	047	034	041	-052	082	150	083	146	066
21	OCCUOPTI	-110	-119	-022	-073	-121	144	065	-200	048	-035
22	WKFACIL	-003	-000	020	-193	136	-074	-030	-021	-028	061
23	PSYWORK	011	-028	037	-044	023	-004	029	027	010	002
24	JOBSATSF	-016	-006	-010	060	-033	031	038	017	087	071
25	PROFACTV	-016	-039	-038	-101	102	-108	-119	048	-193	015
26	PSYHOME	-048	-067	020	-042	-006	022	-011	-038	-004	-082
27	LEISACTV	-069	-047	-124	-234	170	-088	-123	-058	-100	-073
28	PSYSOM	-096	-050	000	-157	-156	105	012	-084	-023	-059
29	HEALTH	-098	-073	-029	-148	-193	105	007	-102	-015	-104

		11	12	13	14	15	16	17	18	19	20
1	COMMUNTY	-097	040	-054	-103	031	-000	-128	065	-048	078
2	REFOYEAR	006	093	-064	-086	-020	059	-068	054	-013	047
3	SCHOSIZE	-290	034	-034	-107	-018	-020	-044	-067	086	034
4	SEX	-255	275	-325	-203	-000	-116	026	-049	-007	041
5	AGE	042	-062	069	129	029	109	017	113	024	-052
6	FAMILY	034	-046	-233	-109	007	020	-058	-091	-003	082
7	EDUCATN	-163	229	-139	-115	060	048	-015	-011	152	150
8	PROFBGND	-232	133	-149	-105	100	071	087	090	067	083
9	TEASUBJ	-210	368	-095	-168	095	-063	044	112	180	146
10	NPUPILS	-334	275	-125	-159	040	039	071	128	138	066
11	NCOURSES	1000	-197	162	091	019	043	-074	094	-079	-164
12	WORKHRS	-197	1000	-212	-169	-020	-091	047	-012	-039	048
13	FREETIME	162	-212	1000	111	030	140	-004	008	131	106

Table A4.11., continued

	11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	091	-169	111	1000	297	237	178	436	124	-034
15 STAFFREL	019	-020	030	297	1000	356	289	360	208	208
16 INFLUENC	043	-091	140	237	356	1000	256	208	429	323
17 PUPILREL	-074	047	-004	178	289	256	1000	365	240	134
18 PARNTREL	094	-012	008	436	360	208	365	1000	172	090
19 MATERSAT	-079	-039	131	124	208	429	240	172	1000	364
20 SCHEDSAT	-164	048	106	-034	208	323	134	090	364	1000
21 OCCUOPTI	032	-043	134	218	116	228	160	176	210	151
22 WKFACIL	025	-079	115	253	160	216	299	270	244	101
23 PSYWORK	071	-081	139	208	357	290	372	250	312	220
24 JOBSATSF	000	035	-072	118	203	147	230	155	164	145
25 PROFACTV	068	-109	015	307	134	067	146	282	-028	-073
26 PSYHOME	031	-013	080	143	236	225	267	186	266	178
27 LEISACTV	134	-191	118	245	041	040	-028	221	-033	-042
28 PSYSOM	040	-118	120	059	077	088	138	049	278	141
29 HEALTH	027	-073	060	040	112	168	150	028	246	178

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-110	-003	011	-016	-016	-048	-069	-096	-098
2 REFOYEAR	-119	-000	-028	-006	-039	-067	-047	-050	-073
3 SCHOSIZE	-022	020	037	-010	-038	020	-124	000	-029
4 SEX	-073	-193	-044	060	-101	-042	-234	-157	-148
5 AGE	-121	136	023	-033	102	-006	170	-156	-193
6 FAMILY	144	-074	-004	031	-108	022	-088	105	105
7 EDUCATN	065	-030	029	038	-119	-011	-123	012	007
8 PROFBGND	-200	-021	027	017	048	-038	-058	-084	-102
9 TEASUBJ	048	-028	010	087	-193	-004	-100	-023	-015
10 NPUPILS	-035	061	002	071	015	-082	-073	-059	-104
11 NCOURSES	032	025	071	000	068	031	134	040	027
12 WORKHRS	-043	-079	-081	035	-109	-013	-191	-118	-073
13 FREETIME	134	115	139	-072	015	080	118	120	060
14 SUPPAUTH	218	253	208	118	307	143	245	059	040
15 STAFFREL	116	160	357	203	134	236	041	077	112
16 INFLUENC	228	216	290	147	067	225	040	088	168
17 PUPILREL	160	299	372	230	146	267	-028	138	150
18 PARNTREL	176	270	250	155	282	186	221	049	028
19 MATERSAT	210	244	312	164	-028	266	-033	278	246
20 SCHEDSAT	151	101	220	145	-073	178	-042	141	178
21 OCCUOPTI	1000	127	263	214	033	213	081	125	086
22 WKFACIL	127	1000	488	193	196	380	208	174	116
23 PSYWORK	263	488	1000	404	108	671	088	347	326
24 JOBSATSF	214	193	404	1000	114	285	014	128	136
25 PROFACTV	033	196	108	114	1000	034	420	005	-054
26 PSYHOME	213	380	671	285	034	1000	040	540	468
27 LEISACTV	081	208	088	014	420	040	1000	019	-060
28 PSYSOM	125	174	347	128	005	540	019	1000	485
29 HEALTH	086	116	326	136	-054	468	-060	485	1000

Table A4.12. Correlations among latent variables. Upper secondary school teachers, N = 233. Decimal points omitted.

	1	2	3	4	5	6	7	8	9	10
1 COMMUNTY	1000	508	428	088	161	049	059	192	-130	-080
2 REFOYEAR	508	1000	143	014	205	063	114	346	-097	-093
3 SCHOSIZE	428	143	1000	085	106	-032	014	121	-095	001
4 SEX	088	014	085	1000	025	-276	002	051	-395	088
5 AGE	161	205	106	025	1000	-148	111	383	-183	-171
6 FAMILY	049	063	-032	-276	-148	1000	-029	098	248	-049
7 EDUCATN	059	114	014	002	111	-029	1000	095	-134	126
8 PROFBGND	192	346	121	051	383	098	095	1000	-057	-131
9 TEASUBJ	-130	-097	-095	-395	-183	248	-134	-057	1000	064
10 NPUPILS	-080	-093	001	088	-171	-049	126	-131	064	1000
11 NCOURSES	-116	-034	-037	-133	-208	103	039	-108	384	458
12 WORKHRS	-255	-196	-102	-304	-225	089	107	-133	222	384
13 FREETIME	-094	-075	009	-341	028	-147	-056	-043	-045	-082
14 SUPPAUTH	-247	-093	-133	-167	028	016	128	-030	012	038
15 STAFFREL	-043	-171	-022	033	-015	-148	-044	-149	-009	168
16 INFLUENC	-178	-142	-063	-135	085	-142	-095	-019	080	004
17 PUPILREL	083	-051	112	075	043	-147	078	-098	-117	074
18 PARNTREL	-082	-076	-143	-198	046	-001	108	-057	178	043
19 MATERSAT	-196	-136	-118	-038	091	-116	104	010	-085	038
20 SCHEDSAT	-063	-003	-033	-102	053	-094	-018	025	-031	-156
21 OCCUOPTI	-193	-123	-060	005	-096	-097	001	-054	057	-008
22 WKFACIL	-022	-010	035	-128	150	-080	053	010	-015	027
23 PSYWORK	037	023	084	-040	147	-042	106	082	-037	039
24 JOBSATSF	030	-009	058	147	-025	-072	018	-075	-034	074
25 PROFACTV	124	087	134	-078	092	-008	162	038	036	-016
26 PSYHOME	-057	-085	040	-181	-082	125	146	-053	091	108
27 LEISACTV	-066	-029	026	-359	049	032	187	096	218	053
28 PSYSOM	-022	-050	-113	-210	-121	022	020	-153	212	148
29 HEALTH	-097	-094	-125	-212	-236	007	-074	-250	090	049

	11	12	13	14	15	16	17	18	19	20
1 COMMUNTY	-116	-255	-094	-247	-043	-178	083	-082	-196	-063
2 REFOYEAR	-034	-196	-075	-093	-171	-142	-051	-076	-136	-003
3 SCHOSIZE	-037	-102	009	-133	-022	-063	112	-143	-118	-033
4 SEX	-133	-304	-341	-167	033	-135	075	-198	-038	-102
5 AGE	-208	-225	028	028	-015	085	043	046	091	053
6 FAMILY	103	089	-147	016	-148	-142	-147	-001	-116	-094
7 EDUCATN	039	107	-056	128	-044	-095	078	108	104	-018
8 PROFBGND	-108	-133	-043	-030	-149	-019	-098	-057	010	025
9 TEASUBJ	384	222	-045	012	-009	080	-117	178	-085	-031
10 NPUPILS	458	384	-082	038	168	004	074	043	038	-156
11 NCOURSES	1000	406	-106	033	041	059	-040	074	-015	-116
12 WORKHRS	406	1000	085	108	050	032	-035	080	-006	-066
13 FREETIME	-106	085	1000	-026	098	188	003	-080	164	148

Table A4.12., continued

	11	12	13	14	15	16	17	18	19	20
14 SUPPAUTH	033	108	-026	1000	218	244	019	512	056	162
15 STAFFREL	041	050	098	218	1000	345	226	355	134	255
16 INFLUENC	059	032	188	244	345	1000	096	280	390	366
17 PUPILREL	-040	-035	003	019	226	096	1000	220	162	139
18 PARNTREL	074	080	-080	512	355	280	220	1000	050	197
19 MATERSAT	-015	-006	164	056	134	390	162	050	1000	243
20 SCHEDSAT	-116	-066	148	162	255	366	139	197	243	1000
21 OCCUOPTI	022	-045	073	132	123	269	156	024	284	139
22 WKFACIL	004	051	233	148	226	243	432	173	287	280
23 PSYWORK	-052	016	155	137	352	188	369	325	155	327
24 JOBSATSF	115	090	-013	068	173	252	282	189	179	128
25 PROFACTV	023	054	-080	110	105	-002	073	271	-064	-100
26 PSYHOME	065	083	055	182	213	194	323	285	131	234
27 LEISACTV	114	231	069	189	027	133	011	277	090	-010
28 PSYSOM	204	183	101	058	132	169	186	189	131	214
29 HEALTH	110	165	179	034	223	146	124	132	134	135

	21	22	23	24	25	26	27	28	29
1 COMMUNTY	-193	-022	037	030	124	-057	-066	-022	-097
2 REFOYEAR	-123	-010	023	-009	087	-085	-029	-050	-094
3 SCHOSIZE	-060	035	084	058	134	040	026	-113	-125
4 SEX	005	-128	-040	147	-078	-181	-359	-210	-212
5 AGE	-096	150	147	-025	092	-082	049	-121	-236
6 FAMILY	-097	-080	-042	-072	-008	125	032	022	007
7 EDUCATN	001	053	106	018	162	146	187	020	-074
8 PROFBGND	-054	010	082	-075	038	-053	096	-153	-250
9 TEASUBJ	057	-015	-037	-034	036	091	218	212	090
10 NPUPILS	-008	027	039	074	-016	108	053	148	049
11 NCOURSES	022	004	-052	115	023	065	114	204	110
12 WORKHRS	-045	051	016	090	054	083	231	183	165
13 FREETIME	073	233	155	-013	-080	055	069	101	179
14 SUPPAUTH	132	148	137	068	110	182	189	058	034
15 STAFFREL	123	226	352	173	105	213	027	132	223
16 INFLUENC	269	243	188	252	-002	194	133	169	146
17 PUPILREL	156	432	369	282	073	323	011	186	124
18 PARNTREL	024	173	325	189	271	285	277	189	132
19 MATERSAT	284	287	155	179	-064	131	090	131	134
20 SCHEDSAT	139	280	327	128	-100	234	-010	214	135
21 OCCUOPTI	1000	187	320	265	023	166	044	118	068
22 WKFACIL	187	1000	486	264	043	455	221	272	192
23 PSYWORK	320	486	1000	450	039	559	200	379	253
24 JOBSATSF	265	264	450	1000	141	304	013	205	131
25 PROFACTV	023	043	039	141	1000	009	343	-061	-081
26 PSYHOME	166	455	559	304	009	1000	238	524	438
27 LEISACTV	044	221	200	013	343	238	1000	103	146
28 PSYSOM	118	272	379	205	-061	524	103	1000	556
29 HEALTH	068	192	253	131	-081	438	146	556	1000