Teachers' Health - Prevention Should Start in Training

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ABSTRACT
The subject of teacher health has long been the focus of scientific interest in Germany and elsewhere. In the Department of Rehabilitation and Special Education at the University of Cologne, a survey of teachers in professional preparation was carried out. Using factor analysis, the study examined which teacher traits or styles existed. Three factors emerged: suitable vs. unsuitable for the profession, female vs. male teaching style, and socially sensitive and disorganized vs. socially insecure and organized. Implications for professional preparation of teachers are presented.
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Background

Teacher health has long been the focus of scientific interest in Germany and other countries. Whereas older studies investigated the connection between school working conditions and stress, adverse mental and physical effects gave rise to the labelling of "burnout syndrome" in the 1980s. These studies showed that "[…] this occupational group should be regarded as an at-risk population as far as mental health is concerned" (Zlatkin-Troitschanskaia, Beck, & Sembill, 2009, p. 606). Teachers also number amongst the occupational groups most severely affected by health risks and early retirement (Schaarschmidt, 2005, Schaarschmidt, Arold, & Kieschke, 2000, Rothland, 2007, Hillert, 2004). The main cause of incapacity for work amongst teachers is mental illness (Rothland, 2007, Weber, Weltle, & Lederer, 2003). Because of the introduction of financial losses, the proportion of pensions granted on the basis of incapacity to work fell from 64% in 2001 to 22% in 2008 (German Office of Statistics 2009). It should not, however, be assumed that this reduction is associated with an improvement in teachers' health. To add to the difficulty, professional rehabilitation of teachers who, in Germany, overwhelmingly are "civil servants," is problematic. For persons who no longer can or wish to practice their profession because of sickness, there are hardly any alternatives (Marfels & Niehaus, 2008). This represents a major social problem as, in addition to the economic loss, it constitutes a massive burden both for those affected and for the school system (Schumacher, Sieland, Nieskens, & Bräuer, 2006).

Prevention

This problem requires changes at various systemic levels such as in society, the education system, the individual school and at the individual level (Zlatkin-Troitschanskaia et al., 2009). The significance of early intervention and prevention is not disputed. Recently a variety of preventive measures and training programs for teachers have been created (Hillert, 2004, Schaarschmidt & Kieschke, 2007, Rothland, 2007).

Nevertheless, many studies indicate that prevention should start during teacher training to enable teachers to practice successfully (Schaarschmidt, 2005, Lüders & Wissinger, 2007, Riegg, 2009, Schubarth & Pohlenz, 2006). There have, for instance, been discussions about procedures to ascertain suitability which ought to be implemented before teachers begin training, or preventive measures which start at the same time as the course of study.

The results of the major empirical investigation known as the "Potsdam Teacher Study" which was started in 1995, showed how important such approaches are (Schaarschmidt, 2005). Four different patterns of individual work-related behavior and experience can be identified, which "[...] have been shown in psychological educational research to be diagnostically accurate indicators for the ability to cope with stress and mental resilience of prospective and practising teachers [...]." (Schröder & Kieschke, 2006, p. 263). Depending on the pattern, managing the job requirements either promotes health or puts it at risk. Pattern G stands for the health ideal, pattern S for a marked level of health care, risk pattern A for excessive commitment and risk pattern B points towards burnout syndrome. In comparing the patterns in various occupational groups, teachers had the least favorable distribution with a percentage of 59% of risk patterns (A and B), whereas only 17% were in the health-promoting pattern G. It was further shown

that even up-and-coming teachers show a similar, extremely unfavorable pattern distribution and are pre-programmed to have health risks. Every fourth person on a teacher training course in the study was in risk pattern B, to which is added a percentage of 15% in risk pattern A and a percentage of 31% in pattern S, which is characterized by substantial loss of motivation and low willingness to perform. No similarly unfavorable cluster was found in any other course of study. In addition, amongst training teachers a correlation between pattern distribution and the conviction of having chosen the right profession was found. Whereas this conviction increases for those belonging to pattern G, there is a marked reduction for pattern B. A study at universities in Münster and Potsdam confirmed these results (Schröder & Kieschke, 2006).

As a result of these findings, intervention concepts and training in improving or building on the necessary competencies have since been developed, including for trainees. It can, however, be assumed that the willingness of trainees to take part in such events depends on several factors. It is, for example, necessary for discussions on this topic to have taken place and trainees need to be aware of their own competencies and development needs. Whether reflecting on their own professionalism is particularly marked in trainee teachers is doubtful. To encourage this process a study was carried out at the University of Cologne in which trainee teachers were asked to assess their own suitability for the profession.

Methods

In the Department of Rehabilitation and Special Education at the University of Cologne, a survey of teachers in professional preparation was carried out within the context of a course of lectures. The survey was conducted at three different times, in the summer semester 2008, in the winter semester 2008-09 and in the winter semester 2009-10.

The standardized questionnaire "Fit for the Teaching Profession?" was used for the survey (Schaarschmidt & Kieschke, 2007). This is a self-assessment questionnaire which was designed for A-Level students and trainee teachers. Within the context of deciding on what to study, the questionnaire is aimed at supporting an individual's independent choice for or against training to be a teacher. The questionnaire offers students the opportunity to check their own suitability for the profession and to identify possible weaknesses so that appropriate steps can be taken at an early stage whilst they are still students. The basic requirements for teaching in terms of personality and behavior are regarded as emotional stability, a positive attitude to the profession and strengths in the social-communications area. The questionnaire covers 21 sections (Table 1) with 3 items on each, which are assessed against a scale of 5 points. The possible responses vary from "This statement does not apply to me at all" to "This statement applies fully to me". The individual values on the scale can be compared with standardized values (student standard and ideal standard). The questionnaire is freely available online (http://www.dbb.de/dbb-beamtenbund-2006/3151_3676.php) and can be completed online or on a printed copy. As well as this tool, students were questioned in writing about socio-demographic aspects, and aspects relevant to their studies e.g. age and gender, course of study, number of semesters attended etc. These questions were processed after the first questionnaire.

Results

Sample

The survey involved 351 people including 246 (70%) female and 105 (30%) male students training to be teachers. Table 2 shows the allocation of respondents to the various survey dates.

As a revised version of the additional questions was used from the winter semester 2008 onwards, the description of the sample is given separately for participants during the summer semester 2008 and the winter semesters 2008-09 and 2009-10.

For summer semester 2008, 117 people took part in this survey, of which the overwhelming majority (N = 105) were between 22 and 24 years of age. Most of the students were doing their basic training (1st to 4th semester). Ninety-one of the participants (67%) were taking the Special Education course.

During winter semester 2008-09 and 2009-10, the average age of the 234 participants was 22 years. Among participants, 172 (73.5%) were female, 184 (78.6%) were taking the Special Education teaching course, 4 (1.7%) were taking the Vocational Training College teaching course, 20 (8.5%) were taking the Comprehensive/Grammar School teaching course, and 26 (11.1%) were taking the Primary and Secondary Modern School teaching course. Most of the participants were doing their basic training in the 1st to 4th semester (84.2%); the average number of semesters studied was 3.6. Thirty of the participants (12.8%) had already completed some professional training. 96 (41.4%) of students said that there were teachers in their family background, most frequently their parents. Most of them said it was their preferred course of study. Only 15 people (6.5%) would have preferred to be studying something else.

Table 1: Sections in Questionnaire "Fit for the Teaching Profession"

Sections in questionnaire	
Pleasure in contact with children and young people	Willing to make effort and make sacrifices
Capable of handling failure proactively	Didactic skills
Willing to take responsibility	Self-confident when appearing in public
Sense of humor	Ability to relax
Tolerance of frustration	Ability to express oneself
Need to acquire knowledge and information	Stability when subject to emotional stress
Voice	Enthusiastic
Ability to be assertive in social/communication situations	Friendly/warm-hearted
Flexibility	Capable of rational work
Social sensitivity	Resilient to stress
	Professional idealism

Table 2: Participants and Timing of Survey

		Frequency	Percentage	Valid percentage	Cumulative percentages
Valid	SS 2008	117	33.3	33.3	33.3
	WS 2008/ 2009	111	31.6	31.6	65.0
	WS 2009/2010	123	35.0	35.0	100.0
	Total	351	100.0	100.0	

Multivariate Analyses

Factor analysis. Using factor analysis, the study examined what types of teachers (factor matrix) existed. Using the factor scores it was possible to state how closely each individual conform to each of these types (Figure 1). A principal components analysis was carried out with the data for all persons surveyed (N = 351) and 18 factors with an eigenvalue greater than 1 extrapolated, which together explain 63% of the variance. The first three factors, which together explain 26% of the variance (Table 3), are presented below. In interpreting the data, the highest positive and/or negative factor-specific correlations were used. As a control, a check was carried out as to whether the interpretation was also accurate for lower loaded variables. Bipolar factors were identified in each case by two generic terms which were contrasting in terms of content and weighted according to the factor loading figures (Lehmann, 2002). The factors ordered according to the degree of correlation are shown in table form, although because of the multiplicity of variables, only items with higher loading are listed.

These are opposing factors on which items with positive and negative correlations are loaded. This means that a large variation exists between people with regard to the characteristics associated with them. The factors are specified as follows:

- suitable vs. unsuitable
- female vs. male teaching style
- socially sensitive and disorganized vs. socially insecure and organized

Table 3: Eigen Values and Variance Resolution for Factors 1 - 3

Factor	1	2	3
Eigen value	9.14	4.15	3.41
Percentage of variance resolved	14.28	6.48	5.33

The first factor (Table 4), which has a clear structure and is easy to interpret, describes general suitability for the profession. All items on the questionnaire which express suitability for the profession are in diametric contrast to those which indicate lack of suitability. This factor makes clear that there are major differences between students surveyed in respect of suitability for the teaching profession.

The factor scores shown in Figure 1 for the first factor show a normal distribution. The average value for the standardized variables is 0 and the standard deviation 1. People with a value around 0 show average suitability. The higher the value, the better the suitability; the lower the value, the worse the suitability for the profession. Figure 1 shows that a large proportion of the students have negative values to a variously marked degree.

In the second factor (Table 5) there is an association between gender and teaching style. Whereas the female teaching type is marked by high social sensitivity, idealism and warmth, in conjunction with emotional instability, the male type is marked by low sensitivity, self-confidence and high tolerance of frustration.

Factor 3 (Table 6), on the one hand describes a type of teacher who is humorous and loves talking but has problems in working rationally and is characterized by low resistance to stress and instability. The opposite of this is a type of teacher, who has a marked ability to recover and relax, can work rationally but is socially insecure.

Discriminant analysis. The correlation between teaching style and gender found in the factor analysis was checked with a discriminant analysis. Discriminant analysis is a form of multivariate variance analysis in which all variables are evaluated together and co-variance differences in the variables with one another are also taken into account (Marfels, 2007). The investigation aimed to find out whether there were differences between male and female students in respect of the scales on the questionnaire. The resulting discrimination factor (Table 7) distinguishes very significantly (χ^2 (21; $p < .001$) = 84.09) between both groups.

A markedly male teaching style is characterized by self-confidence, good stress resistance and tolerance of frustration. People who correspond to this profile are also more humorous and have a more strongly marked need for knowledge and information than persons with a markedly female style. On the other hand the latter show higher values in respect of willingness to take responsibility, flexibility, friendliness and warm-hearted qualities. This result agrees with the results found in the factor analysis.

The majority of participants have a teaching style which correlates with their gender. However 26.8% of female participants would correspond more to the male profile and 28.6% of male participants to the female profile.

Discussion

Teachers are exposed to multiple stresses which are associated with health risks, in particular mental illnesses. A large percentage of teachers retire early from the profession for reasons of chronic sickness. The necessity for preventative actions is now undisputed, but it is becoming clear that such measures ought to start early whilst teachers are still training. Various studies have provided impressive evidence that a large percentage of students studying to be teachers had a style of managing job requirements which represented a health risk, compared with students in other disciplines. Prospective teachers who are already suffering from burnout syndrome before they start work in the profession, or who are characterized by lack of motivation and low willingness to perform, do not have the right initial requirements for the profession. This indicates an urgent need for action. Nowadays intervention programmes exist for students in which, for example, training can be given and improvements made in necessary basic competencies. Special procedures for ascertaining the suitability of prospective teachers are also discussed. It is, however, doubtful whether comprehensive measures using the latest diagnostic methods will be carried out in all universities which offer courses in teacher training. The question also arises as to whether such students would be willing to participate in such measures, or to what extent this topic is discussed at all.

To be able to reflect on their own professionalism, individuals need to be aware of both the stresses and necessary competencies for the profession, as well as individual requirements. To stimulate this process, students studying to be teachers at the University of Cologne were surveyed about their personal suitability for the profession as part of their course of lectures. The study showed that there are major differences between students as regards their suitability. Various types of teachers were also identified, as were gender-specific teaching styles. The results made clear the need for further training for students and the necessity of introducing appropriate measures. Gender-related differences in teaching style, which are associated with different competencies but also weaknesses, should be taken into account in future interventions. One further important aspect concerns the problem that a

proportion of the students only discovered during the course of study that they had made the wrong choice of profession. It should be assumed that most of the people affected in this way would continue their studies despite this awareness, as they would not see any alternative prospects. The current reorganization of teacher training in this case offers possible new solutions, as after obtaining a first degree in education; students may opt to study for a Masters degree in another area. The University of Cologne, for instance, offers a new Masters degree in Rehabilitation Science, which is cross-disciplinary in approach and combines various specialist science topics such as remedial education, sociology and psychology. This course of study could, for instance, offer an interesting alternative to the teaching profession after a Bachelors degree in education. Finally, it should be noted that "*a low personal stress threshold, low resistance capability and unfavourable conditions of study in teacher training are mutually reinforcing and cumulative in their effects*" (Schubarth & Pohlenz, 2006, p. 278) and therefore innovative approaches to finding a solution are called for.

Table 4. Factor 1 - Suitable vs. Unsuitable

Factor 1	
suitable	
Variable **Correlation**	
I find it easy to teach someone something.	.55
I think I am successful in making things seem interesting.	.53
I can enthuse people with my ideas.	.52
I can explain even complicated things well.	.52
I think that I will take pleasure and enthusiasm in being a teacher.	.52
I am successful in structuring complex topics so that another person can understand them.	.48
If I appear in public and have to give a speech, I can overcome inhibitions without difficulty.	.48
I can adapt to new conditions without difficulty.	.47
I find it easy to impose myself with my voice.	.46
I often support the cause of other people.	46
unsuitable	
Variable **Correlation**	
My attitude is really that I prefer everything to run on tried and trusted lines.	-.53
I feel insecure if I have to talk in front of several people.	-.51
I have difficulty in convincing other people about something.	-.48
In lectures and discussions I find my ability to express myself leaves something to be desired.	-.47
If I am faced with several important things/deadlines at once, it soon gets too much for me.	-.44
If I'm under great pressure I easily panic.	-.43
In a group my voice often gets lost.	-.41
I often lose my desire and motivation if I do not succeed despite encouragement.	-.39
It is often too much for me if I always have to be there for others.	-.39
If I meet resistance, it is difficult for me to take consistent decisions.	-.39

Figure 1. Distribution of the Factor Values for the First Factor

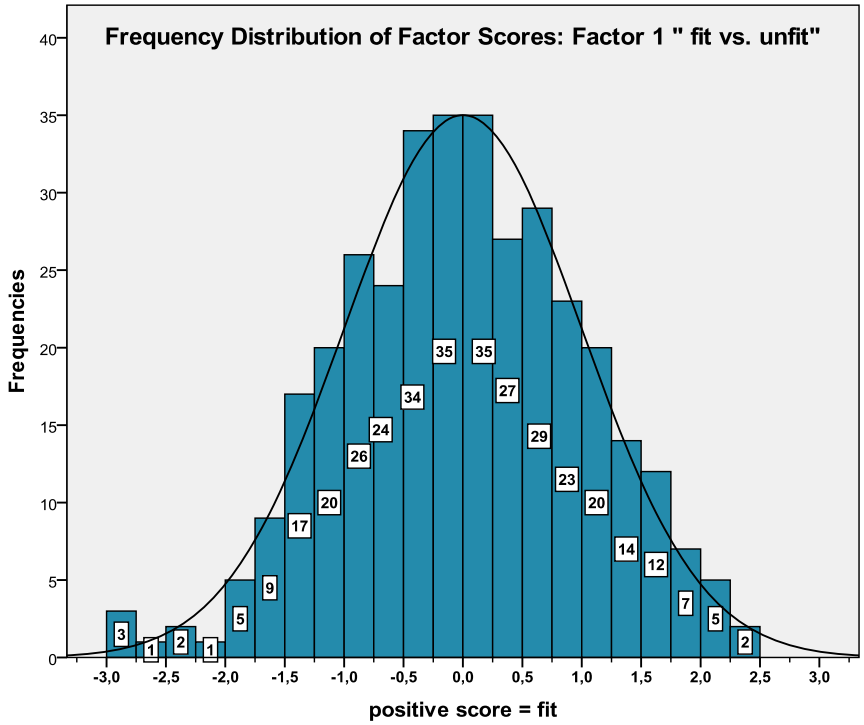

Table 5. Factor 2 - Female vs. Male teaching "Style"

Factor 2	
female	
Variable **Correlation**	
I am sensitive to the problems of other people.	.50
I have a feeling for how I ought to behave with certain people.	.47
I find it important to stand alongside young people as an advisor and helper.	.47
Most people would think of me as a warm-hearted person.	.47
I think that I can be very warm-hearted.	.45
Conflicts with other people make me feel very agitated.	.41
I am very sensitive to personal reproaches and attacks.	.40
male	
Variable **Correlation**	
I find it difficult to put myself in other people's shoes	-.54
male(*sic*)	-.50
I soon brush off illness.	-.42
I can probably cope with disappointment better than most other people.	-.36
I like to be well-informed on social matters and politics.	-.36
If I appear in public and have to give a speech I can overcome inhibitions without difficulty.	-.34
Many of my acquaintances would probably describe me as rather cool and distant.	-.34

Table 6: Factor 3 – Social Sensitive/Disorganized vs. Social Insecure/Organized

socially sensitive and disorganized	
Variable	**Correlation**
I find it easy to make other people laugh.	.48
If I have several tasks to complete, I find it hard to prioritize.	.44
Conflicts with other people make me feel very agitated.	.44
I fear that I do not work rationally enough.	.43
When I'm dealing with other people, even minor interruptions and problems can make me lose my thread completely.	.42
If I am faced with several important things/deadlines at once, it soon becomes too much for me.	.41
I don't mind speaking to a group of adults even if I'm unprepared.	.40
My friends and acquaintances value my easy-going, sunny disposition.	.38
I can talk for ages without difficulty.	.37
I find it easy to impose myself with my voice.	.37
socially insecure and organized	
Variable	**Correlation**
I understand how to balance work and relaxation.	-.41
I usually manage to get my work done in the time specified without difficulty.	-.35
I find it difficult to be quick-witted and funny when it's called for.	-.32
I feel insecure talking in front of several people.	-.32
In a group my voice often gets lost.	-.32
In my leisure time I am successful in relaxing and recuperating.	-.30
My attitude is that in this profession you don't really finish work at a particular time.	-.30
In lectures and discussions, my ability to express myself leaves something to be desired.	-.29

Table 7: Discrimination function

Discrimination factor			
male		**female**	
Variable	*Correlation*	*Variable*	*Correlation*
Secure appearing in public	.41	Willingness to take responsibility	-.33
Stress resistance	.33	Friendliness and warm-hearted quality	-.29
Humor	.33	Flexibility	-.25
Tolerance of frustration	.31		
Need for knowledge and information	.29		

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