

Psychological variables and Evaluation of Distinctive Characteristics of Teaching Standards

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Abstract

The present study is part of a broader project on the development, validation and assessment of teaching standards for vocational school teachers. Using the results of three independent studies, 45 competence profiles for vocational teachers were worked out and grouped into the 4 main content-domains of 1) teaching-related standards, 2) learning process -related standards, 3) learning environment -related standards and 4) self-management/cooperation-related standards. The main purpose of the present study (N=853) was to explore whether psychological variables such as teacher identity, teacher self-efficacy, dissatisfaction with the cooperativeness within the school and occupational satisfaction affect the evaluation of teaching standards. Teachers, politicians, school inspectors, school directors, praxis consultants and educational scientists were requested to evaluate each standard with reference to their importance, frequency of use (application frequency), difficulty of application and relevance for teacher education. Evaluations were given on 4-point Likert scales presented within the same standardized questionnaires that contained the items to assess the psychological dimensions. One of the main hypotheses was that teacher self-efficacy and teacher identity would correlate positively with ratings of importance, relevance for teacher education and application frequency of learning process-related, cooperation-related and self-management standards. We assumed further that teacher self-efficacy and teacher identity correlate negatively with ratings of difficulty of application of these standards. Results support our hypotheses, thus suggesting that teachers' evaluations of teaching standards are influenced by self-esteem, teacher identity and variables related to professional satisfaction. Teacher's evaluations of teaching standards are therefore biased estimations of the "true" characteristics of standards. Research on standards should consequently take into account these variables while attempting to define competence profiles or teaching standards based on the input that comes from praxis experts.

Introduction

Questioning self aspects in teaching

The question of how psychological variables such as teacher identity, professional satisfaction and teacher self-efficacy are related to competence profiles and (consequently) behavior of professionals has yet to be adequately answered. We can ask, for example, how self-efficacy can influence the surgery success of a physician, or the court fight of a lawyer, or the management act of a teacher. This is an interesting problem in that at least three substantial hypotheses can be generated:

- a) We could assume that any competence and any act of teachers is the result of self-related variables. The self would then be a major factor, and correlations between

¹ Theoretical co-work and data collection was conducted in cooperation with Maja Kern and Christine Steiner.

competence-related variables, behavioral indicators and self-related factors would be very high. In this case we would speak of competence itself as an issue concerning the self.

- b) Conversely, we could assume that self, professional behavior and competencies are orthogonal dimensions. In this case self-related measures would not be associated with professional variables and we would not expect any correlation between indicators of professional competencies and self-related variables.
- c) The third hypothesis states that self-related factors are only moderately related to competence profiles and the behavior of teachers and other professionals. Thus, – assuming that there is a causal path from the self to behavior – we could then create a subset of hypotheses dealing with each of the specific ways in which the self would modulate competence profiles and professional behavior. With reference to self-efficacy we could for example speculate that it contributes to the improvement of group work organization, ability to give positive feedback or use of different teaching strategies in a responsible way.

Dissatisfaction with cooperativeness within the school and occupational satisfaction in teaching

What does occupational satisfaction mean and what does dissatisfaction with the cooperativeness within the school mean? Obviously these variables are state oriented; they mostly depend on conditions outside the professional context. As Becker (1994) shows, there are of course habitual aspects of satisfaction, but these are rather general dispositions and are not related to daily professional work (Dalbert, 1992). A noticeable overview of satisfaction research has been provided by Hascher (2004). According to her, correlates of satisfaction are socio-economic state, health, leisure, general professional activity, mood, social relationships and cultural belonging. In our case occupational satisfaction depends on work conditions, the work load and the amount of work-related responsibilities. It seems – according to our hypothesis – that occupational satisfaction is positively related to competence profiles in teaching.

However dissatisfaction with cooperativeness within the school is related to colleagues, principals and controlling people. Here the power of distance is intensively given by the tension-oriented relationship to these competitive or controlling influences. Dissatisfaction with the cooperativeness within the school is a clearly different dimension than occupational satisfaction, therefore, because each reference is different. Occupational satisfaction refers to the teaching activity itself, dissatisfaction with school climate, collegial interaction and other related variables.

However, both constructs refer to motivational elements, to the amount of intrinsic motivation and to positive or negative experiences (Csikszentmihalyi & Schiefele 1993; Prenzel et al. 1996). Of course there are also holistic forms for evaluating the professional setting as Rheinberg (1999) shows. Nevertheless satisfaction includes wellness, positive and negative emotions (Jerusalem & Mittag 1999) and a good social climate (Peetsma et al. 2002).

The research program

However, these and other questions concerning the relationships and possible causal paths between psychological variables and professional competence profiles necessarily involve the need for reliable and valid measures of competence. The clarification of measurement problems and related issues has been the main aim of previous studies within the broader program on the development, assessment and validation of competence profiles of which the present study is only a small component. We started this research program in 1996 with an evaluation of almost all teaching institutions in Switzerland (Results from this early program have been already published elsewhere: Oser & Oelkers, 2001). Our ideas have been influenced by the work of Damon (1991); Shulman (1987); CERI/TE (1992); Goodlad (1990); Bromme (1992), OECD (1994); Scheerens & Bosker (1997); Weinert & Helmke (1996); Cullingford (1995); Scriven (1994) and especially Dwyer & Villegas (1993), but also Harteis & Prenzel (1998). We found that, with respect to competences, teacher training does not provide the development of competences, but a good social climate, a satisfactory primary motivation and an acceptable knowledge base.

Clearing the field

What is the difference between a teaching competence, a competence profile and a standard? This issue is important in order to fully understand the relationships between self-related variables, professional satisfaction and teaching standards.

First, teaching competence is the capacity of a teacher to perform a reflected single action. Such an action is for instance might be asking an open question in a situated learning process. The performance of this action and its assimilation to a pedagogical necessity is an indicator of the existence of such a competence.

Second, a competence profile consists of the performance of a chain of actions, all connected through a goal-oriented conceptual learning situation. If we think about organizing and managing group work; this is the competence to assign a task, organize groups, hand out work sheets, ask for a result, encourage students who get lost, scaffold poorly performing groups, support the presentation of the group results, and include the results in the next instructional step. All these activities are performances that reflect one single competence, namely being able to organize and manage group work. And that is why we speak about a competence profile, including a couple of clustered performances.

Third, a teaching standard is a competence profile combined with a benchmark for quality. The measurement of that quality can be achieved by using different methods.

In other words our fundamental theoretical concept can be summarized as follows:

1. Teaching competence profiles are not single and clearly definite teacher skills because the practice of teaching involves continuous self-assessment and never-ending adjustment of teaching behavior.
2. Standards are more than the simple sum of all distinct teaching acts and may be broadly seen as a combination of several different teaching abilities in one (or more) clear-cut teaching/learning situation(s).
3. In addition, levels of standard fulfillment should be measurable in order to allow the evaluation of teaching practices and the assessment of teaching performances.

On the basis of the above mentioned comprehensive study (Oser & Oelkers, 2001) in which we evaluated 88 teaching standards (nearly all in a Swiss educational setting), we recently developed a frame of 45 standards for vocational school teachers according to the results of a

four step Delphi study conducted with experienced teachers and experts in the field of teaching. Our research program required further independent studies involving students, teachers, politicians, school inspectors, school leaders, school consultants and educational scientists. According to the results of these studies and to theoretical considerations of specific tasks performed by vocational teachers, the 45 standards have been grouped theoretically into the 4 main content-domains of 1) teaching-related standards (planning and teaching methods), 2) learning process -related standards (learner assistance, diagnostic tools and assessment of performance), 3) learning environment -related standards (designed or circumstantial context) and 4) management/cooperation-related standards (self-management and cooperation). Other groups were created according to results of cluster and factor analyses and then compared with the theoretical groups (These data will be published elsewhere).

In this paper we will show results with reference to a specific subset of the theoretically grouped standards (A complete list of grouped standards is provided in the Appendix). These standards have been selected for three main reasons: a) we needed to use only about the half of the standards because of place limitations; b) we intended to use standard groups with high reliability sources; and c) we were determined to create at least three types of theoretical clusters, namely learning-process -related standards, followed by cooperation and self-management standards and finally teaching-related standards.

Ratings of characteristics of these standards were requested from teachers, teaching praxis consultants, politicians, school inspectors, educational scientists, school directors and other kind of experts in a field inherent to vocational education with reference to the following four central dimensions:

- a) Experts, teachers and non-teachers had to evaluate the importance of each standard. Importance means professional necessity in the sense that, without the mastery of that standard, teaching is not effective. High ratings suggest that the standard substantially frames the profession. Low ratings mean that the profession can exceed the necessary professional acts without this standard.
- b) The second question deals with the estimation of the frequency of use of the respective standard. Here the subjectively felt repetitiveness of situations in which the performance of that standard is at stake is rated. The frequency of use gives information about professional necessity with respect to the application of the standard.
- c) The third question deals with the subjectively felt difficulty of standard performance. We can imagine that for instance the differentiation of adolescent learning support is more difficult to implement than direct teaching. Thus, if a standard is judged easy to perform we can suppose that it is not very professional, or we can hypothesize that the teacher is very familiar with it.
- d) Finally we asked the full sample described below about the significance of the standard for teacher training programs. If the judgment about the importance of the standard is high, we can also assume that a great deal of this high estimation goes into the judgment about the learning within the training frame. Sometimes we experienced the opposite: teachers not being sure in the performance with a standard attribute high priority of this standard for the teacher training process. Such relationships could be assessed through the combination of the four estimations which can be “high/high/low/high”, or “high/low/low/high” etc (Oser et al., 2007).

The core of this study

We have mentioned three hypotheses with reference to the relationships between standard performance and self-related variables. Since subjectivity can be seen as a consequence of the influence of such psychological variables, the purpose of the present study was to explore whether psychological variables such as teacher identity, teacher self-efficacy, dissatisfaction with the cooperativeness within the school and occupational satisfaction of teachers might affect the ratings of the characteristics of teaching standards that have been worked out by the *Professional Minds* project team. One of the main hypotheses was that teacher self-efficacy and teacher identity correlate positively with ratings of importance, relevance for teacher education and frequency of use of learning and teaching process -related (tables A1 to A3 and A6), cooperation-related (table A4) and self-management (table A5) standards. We assumed further that teacher self-efficacy and teacher identity correlate negatively with ratings of the difficulty of application of these standards.

Sample

The sample consisted of N=853 subjects involved in teaching at a vocational school or acting as experts in a field inherent to vocational education. Of these subjects, 111 were teachers without certification with a teaching experience of 4 years or less; 36 were teachers without certification with 4 to 13 years teaching experience; 57 were uncertified teachers with more than 13 years teaching experience; 83 were certified teachers with less than 4 years teaching experience; 96 were certified teachers with 4 to 13 years teaching experience; 200 were certified teachers with more than 13 years teaching experience; 95 were praxis consultants; 65 were politicians, school inspectors, educational researchers or other kinds of experts in a field inherent to vocational education; 50 were school directors and 60 could not be classified because of missing data.

Methods

Ratings of importance, frequency of use, difficulty of application and relevance for education were requested for each standard on 4 point Likert scales using standardized questionnaires. The importance scale ranged from unimportant to important, the application scale from never to often, the difficulty of application scale from simple to difficult and the relevance scale from low to high.

To measure teacher identity a 6-item scale (Cronbach's $\alpha=.76$) was developed (table B1). Further, a 3-item scale (table B2) was constructed to assess dissatisfaction with the cooperativeness within the school (Cronbach's $\alpha=.78$) and a 5-item scale (table B3) was created to measure occupational satisfaction (Cronbach's $\alpha=.64$). All scales were developed starting from theoretical conceptions and in turn analyzed using principal component analyses followed by varimax rotation and reliability analyses. Finally, teacher self-efficacy (table B4) was measured using an adapted version of the WIRKlehr teacher self-efficacy scale (Schwarzer, & Schmitz, 1999; Cronbach's $\alpha=.71$). Psychological variables were not assessed among politicians, school inspectors, school directors, educational researchers and other experts in a field inherent to vocational education.

Results

Self-efficacy, teacher identity and ratings of teaching standards

As predicted, self-efficacy was found to be positively correlated with ratings of importance, relevance for teaching and frequency of use of learning process-related, cooperation-related, self-management-related and teaching process-related standards. According to the hypothesis self-efficacy was also found to be negatively correlated with ratings of difficulty of application. The same trend occurs with reference to teacher identity, although the observed correlations are not always statistically significant. These remarkable results have been found to be standard-group independent, highly consistent and extremely reliable over all ratings of teaching standards (tables 1 to 6).

Dissatisfaction, satisfaction and learning process related standards

With reference to learning process related standards (tables 1 to 3) dissatisfaction with the cooperativeness within the school was found to be negatively correlated with the degree of importance attributed to standard 8 (The teacher is able to understand whether the students qualify for the vocational school. He or she is also able to recognize who needs special assistance) and the frequency of use of this standard. On the other hand, occupational satisfaction was positively correlated with estimations of the importance and frequency of use of standard 8. Dissatisfaction with the cooperativeness within the school is also positively related to the educational relevance ascribed to standard 21 (The teacher is able to cope with errors in a wide spectrum of situations. He or she is able to discuss mistakes in order to improve long life learning) with reference to teacher education. However, occupational satisfaction is positively related to the frequency of use and negatively correlated with the estimated degree of difficulty of this standard. Further, dissatisfaction with the cooperativeness within the school is also positively associated with the degree of difficulty of application attributed to standard 16 (The teacher is able to assign, examine and explain homework) whereas occupational satisfaction is negatively correlated with the degree of difficulty attributed to standard 16 and positively correlated with estimates of application frequency of this standard.

Table 1: Correlations between self-related variables, dissatisfaction with the cooperativeness within the school, occupational satisfaction and ratings of characteristics of diagnostic standards

	IDENTITY	SELF-EFFICACY	DISSATISFACTION	SATISFACTION
IMPORTANCE STANDARD 8	.1405**	.2202**	-.1072*	.1087*
FREQ. USE STANDARD 8	.1745**	.1840**	-.1054*	.1545**
DIFFICULTY STANDARD 8	-.0292	-.1192**	.0116	-.0408
RELEVANCE STANDARD 8	.1553**	.2282**	-.0312	.0727
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IMPORTANCE STANDARD 24	.1331**	.1964**	.0272	.0467
FREQ. USE STANDARD 24	.1253**	.2699**	-.0054	.0637
DIFFICULTY STANDARD 24	-.0746	-.2878**	-.0040	-.0954*
RELEVANCE STANDARD 24	.0881*	.2118**	.0480	.0533
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IMPORTANCE STANDARD 39	.1314**	.2067**	-.0212	.0619
FREQ. USE STANDARD 39	.1109**	.1745**	-.0294	.0495
DIFFICULTY STANDARD 39	-.0181	-.1875**	-.0031	-.0376
RELEVANCE STANDARD 39	.1214**	.1797**	-.0178	.0301

* $p < .05$; ** $p < .01$; $N = 558$; Relevance = Relevance for teacher education; Dissatisfaction = Dissatisfaction with the cooperativeness within the school; Satisfaction = Occupational Satisfaction

Table 2: Correlations between self-related variables, dissatisfaction with the cooperativeness within the school, occupational satisfaction and ratings of characteristics of learner assistance standards

	IDENTITY	SELF-EFFICACY	DISSATISFACTION	SATISFACTION
IMPORTANCE STANDARD 19	.0656	.2069**	-.0527	.0804
FREQ. USE STANDARD 19	.0657	.2627**	-.0595	.0785
DIFFICULTY STANDARD 19	-.0057	-.2019**	.0071	-.0254
RELEVANCE STANDARD 19	.0795	.2257**	.0364	.0486
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IMPORTANCE STANDARD 21	.0866*	.2029**	.0536	.0522
FREQ. USE STANDARD 21	.0871*	.1712**	-.0668	.1114**
DIFFICULTY STANDARD 21	-.1045*	-.2576**	.0574	-.1617**
RELEVANCE STANDARD 21	.0976*	.1335**	.1676**	.0004
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IMPORTANCE STANDARD25	.2084**	.2063**	.0534	.0040
FREQ. USE STANDARD 25	.1429**	.1806**	.0222	.0147
DIFFICULTY STANDARD 25	-.0059	-.2446**	.0231	-.0718
RELEVANCE STANDARD 25	.1670**	.1876**	.0578	.0292

* $p < .05$; ** $p < .01$; N=548; Relevance = Relevance for teacher education; Dissatisfaction = Dissatisfaction with the cooperativeness within the school; Satisfaction = Occupational Satisfaction

Table 3: Correlations between self-related variables, dissatisfaction with the cooperativeness within the school, occupational satisfaction and ratings of characteristics of evaluation standards

	IDENTITY	SELF-EFFICACY	DISSATISFACTION	SATISFACTION
IMPORTANCE STANDARD 16	.1842**	.0692	-.0057	.0692
FREQ. USE STANDARD 16	.1802**	.0513	-.0512	.1290**
DIFFICULTY STANDARD 16	-.0536	-.2124**	.0966*	-.1291**
RELEVANCE STANDARD 16	.1566**	.0552	-.0009	.0815
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IMPORTANCE STANDARD 27	.1357**	.2513**	.0075	.0799
FREQ. USE STANDARD 27	.1313**	.1382**	-.0036	.0593
DIFFICULTY STANDARD 27	-.1385**	-.2618**	.0620	-.1004*
RELEVANCE STANDARD 27	.1357**	.1970**	.0127	.0511
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IMPORTANCE STANDARD 44	.1583**	.2136**	.0203	.0067
FREQ. USE STANDARD 44	.1539**	.2197**	.0079	.0151
DIFFICULTY STANDARD 44	-.1111**	-.2735**	.0523	-.0844*
RELEVANCE STANDARD 44	.1422**	.2356**	.0815	-.0111

* $p < .05$; ** $p < .01$; N=555; Relevance = Relevance for teacher education; Dissatisfaction = Dissatisfaction with the cooperativeness within the school; Satisfaction = Occupational Satisfaction

Dissatisfaction, satisfaction and cooperation standards

With reference to cooperation standards (table 4) dissatisfaction with the cooperativeness within the school is positively correlated with estimates of difficulty and educational relevance of the standards 9 (The teacher is able to deal with cooperation problems within the school setting) and 22 (The teacher is able to design, carry out and evaluate projects with reference to school development curriculum and teaching). Dissatisfaction with the cooperativeness within the school is also negatively related to the application frequency of the standards 22 and 23 (The teacher is able to create a confidence base with the responsible persons of the training enterprise through regular exchange and can resolve students' difficulties in collaboration with the training enterprise). Conversely, occupational satisfaction is negatively correlated with estimates of educational relevance of standard 9, negatively correlated with estimates of difficulty of the standards 22 and 23 and positively correlated with the frequency of use of standard 22. Furthermore, occupational satisfaction is positively correlated with the degree of importance attributed to standard 28 (The teacher is able to examine the work and training situation within a vocational field and use the results as a basis for rearrangement of instruction), and the frequency of use of the standards 28 and 14 (The teacher is able to stand up for the school- and instruction concepts in the context of parents

instructor evenings, excursions, etc). Also, there is a negative correlation between occupational satisfaction and estimates of difficulty of standard 28.

Table 4: Correlations between self-related variables, dissatisfaction with the cooperativeness within the school, occupational satisfaction and ratings of characteristics of cooperation-related standards

	IDENTITY	SELF-EFFICACY	DISSATISFACTION	SATISFACTION
IMPORTANCE STANDARD 9	.1576**	.1097*	.0319	.0062
FREQ. USE STANDARD 9	.1407**	.1153**	-.0151	.0666
DIFFICULTY STANDARD 9	.0349	-.0873*	.2076**	-.1299**
RELEVANCE STANDARD 9	.1088*	.1071*	.1403**	-.0881*
IMPORTANCE STANDARD 14	.1127**	.1578**	-.0549	.0770
FREQ. USE STANDARD 14	.1040*	.1639**	-.0588	.0939*
DIFFICULTY STANDARD 14	-.0832	-.1739**	.0231	-.0713
RELEVANCE STANDARD 14	.0787	.1337**	.0629	-.0017
IMPORTANCE STANDARD 22	.1353**	.1898**	.0709	.0138
FREQ. USE STANDARD 22	.1593**	.1338**	-.1083*	.0853*
DIFFICULTY STANDARD 22	-.0403	-.1809**	.1896**	-.1441**
RELEVANCE STANDARD 22	.1062*	.1585**	.1529**	-.0744
IMPORTANCE STANDARD 23	.1247**	.2332**	.0021	.0035
FREQ. USE STANDARD 23	.0896*	.2453**	-.0849*	.0664
DIFFICULTY STANDARD 23	-.0870*	-.2563**	.0629	-.1347**
RELEVANCE STANDARD 23	.0404	.1827**	.0478	-.0494
IMPORTANCE STANDARD 28	.0571	.1940**	.0179	.0961*
FREQ. USE STANDARD 28	.0573	.2053**	-.0471	.1086*
DIFFICULTY STANDARD 28	-.0042	-.2034**	.0206	-.0975*
RELEVANCE STANDARD 28	.0668	.1574**	.0805	.0180

* p<.05; ** p<.01; N=535; Relevance = Relevance for teacher education; Dissatisfaction = Dissatisfaction with the cooperativeness within the school; Satisfaction = Occupational Satisfaction

Dissatisfaction, satisfaction and standards of self-management

With reference to self-management (table 5) dissatisfaction with the cooperativeness within the school is positively associated with the educational relevance attributed to the standards 17 (The teacher is able to recognize his or her level of work load and identify causes of burnouts. He or she knows how to adopt measures of self-protection and can accept assistance) and 32 (The teacher is able to analyze his or her own behavior and/or teaching. He or she is able to deal with feedback) and with the difficulty of application ascribed to the standards 17 and 33 (The teacher knows how to work out a meaningful training program that fits his or her current professional situation. He or she is able to carry out this program and put the results into practice). On the other hand, occupational satisfaction is negatively associated with the difficulty attributed to the standards 17, 32 and 33.

Table 5: Correlations between self-related variables, dissatisfaction with the cooperativeness within the school, occupational satisfaction and ratings of characteristics of self-management standards

	IDENTITY	SELF-EFFICACY	DISSATISFACTION	SATISFACTION
IMPORTANCE STANDARD 17	.1194**	.1208**	.0185	-.0157
FREQ. USE STANDARD 17	.1360**	.0890*	.0362	.0538
DIFFICULTY STANDARD 17	-.0423	-.1666**	.1100**	-.1897**
RELEVANCE STANDARD 17	.1458**	.1601**	.0935*	-.0156
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IMPORTANCE STANDARD 31	.1082*	.2187**	.0238	.0633
FREQ. USE STANDARD 31	.0910*	.1270**	-.0364	.0331
DIFFICULTY STANDARD 31	-.1309**	-.2035**	.0614	-.0702
RELEVANCE STANDARD 31	.1484**	.1994**	.0830	.0003
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IMPORTANCE STANDARD 32	.1365**	.1942**	.0424	.0580
FREQ. USE STANDARD 32	.1062*	.1827**	-.0737	.0781
DIFFICULTY STANDARD 32	-.0919*	-.1951**	.0766	-.1278**
RELEVANCE STANDARD 32	.1107**	.1612**	.0880*	-.0103
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IMPORTANCE STANDARD 33	.0876*	.1992**	.0561	.0242
FREQ. USE STANDARD 33	.0407	.1490**	-.0107	.0554
DIFFICULTY STANDARD 33	-.1465**	-.1139**	.0925*	-.1824**
RELEVANCE STANDARD 33	.0984*	.2006**	.0777	.0087

* $p < .05$; ** $p < .01$; N=552; Relevance = Relevance for teacher education; Dissatisfaction = Dissatisfaction with the cooperativeness within the school; Satisfaction = Occupational Satisfaction

Dissatisfaction, satisfaction and teaching process -related standards

With reference to teaching process-related standards (table 6) occupational satisfaction has been found to be positively associated with the degree of importance attributed to the standards 2 (The teacher is able to formulate, implement and monitor goals at different levels and implements objectives in order to target the instruction with reference to content and methodology. He or she can implement the syllabus taking into account the particularities of each topic), 3 (The teacher is able to work out examination questions and assignments with reference to learning objectives. He or she can set different forms of examination and examination procedures in a purposeful way) and 41 (The teacher is able to produce suitable learning materials according to the syllabus and the available educational resources). Occupational satisfaction is also positively correlated with the frequency of use of the standards 2 and 41 as well as negatively correlated with the difficulty attributed to the standards 3 and 41.

Correlations of teaching process-related standards and dissatisfaction with the cooperativeness within the school were limited to low positive relationships with the difficulty of application attributed to the standards 2 and 3.

Table 6: Correlations between self-related variables, dissatisfaction with the cooperativeness within the school, occupational satisfaction and ratings of characteristics of teaching standards (setting up lectures)

	IDENTITY	SELF-EFFICACY	DISSATISFACTION	SATISFACTION
IMPORTANCE STANDARD 2	.2194**	.2969**	.0032	.1402**
FREQ. USE STANDARD 2	.1758**	.2927**	-.0285	.1041*
DIFFICULTY STANDARD 2	-.1074*	-.2143**	.0917*	-.0820
RELEVANCE STANDARD 2	.2048**	.2465**	.0306	.0788
STANDARD 3				
IMPORTANCE STANDARD 3	.1930**	.1261**	.0231	.1532**
FREQ. USE STANDARD 3	.1773**	.0514	.0737	.0717
DIFFICULTY STANDARD 3	-.0702	-.1778**	.0925*	-.0953*
RELEVANCE STANDARD 3	.1585**	.1083*	.0569	.0359
STANDARD 5				
IMPORTANCE STANDARD 5	.2000**	.1429**	-.0417	.0792
FREQ. USE STANDARD 5	.1464**	.1336**	-.0195	.0570
DIFFICULTY STANDARD 5	-.0471	-.1958**	.0682	-.0459
RELEVANCE STANDARD 5	.1685**	.1514**	.0239	.0079
STANDARD 41				
IMPORTANCE STANDARD 41	.0971*	.1124*	-.0231	.1313**
FREQ. USE STANDARD 41	.1053*	.0389	-.0052	.1046*
DIFFICULTY STANDARD 41	-.1228**	-.1626**	.0482	-.1414**
RELEVANCE STANDARD 41	.1458**	.1453**	.0212	.0639

* $p < .05$; ** $p < .01$; $N=496$; Relevance = Relevance for teacher education; Dissatisfaction = Dissatisfaction with the cooperativeness within the school; Satisfaction = Occupational Satisfaction

Moderator Variables

Since the sample used in this study was heterogeneous, correlations were additionally computed separately for each of the groups described in the sample section. Results indicate correlations of ratings with psychological variables in each group and the same general trend described above. Experience and certification did not affect the results. However, exclusion of the praxis consultants revealed higher correlations in the groups of experienced and inexperienced teachers with and without certification. Furthermore, among praxis consultants correlations were less frequent and mostly limited to relationships between self-esteem and the evaluation of the importance of standards and their relevance for teacher education. In this group occupational satisfaction was totally uncorrelated with standards of cooperation and

self management. Additionally, correlations with the dissatisfaction with the cooperativeness within the school were limited to evaluations of standard 44 with reference to frequency of use, difficulty of application and relevance for teacher education, educational relevance of the standards 32 and 33 and importance and educational relevance of standard 32.

Discussion

In sum, the results of this study show that self-related and satisfaction-related variables are correlated with teacher's evaluations of importance, educational relevance, frequency of use and difficulty of application of teaching standards. As predicted, teacher self-efficacy and teacher identity were found to be positively correlated with ratings of importance, relevance for teacher education and frequency of use of learning process-related, cooperation-related and self-management standards. As predicted by the hypotheses, self-efficacy and identity were also negatively correlated with evaluations of the difficulty of standards. In addition, dissatisfaction with the cooperativeness within the school and occupational satisfaction were correlated with a large number of evaluations.

Our data do not, of course, allow causal interpretations. However, these results strongly suggest that teacher evaluations are at least partly affected by psychological factors and must therefore be seen as subjective in nature. Moreover, the results imply that teacher ratings of characteristics of teaching standards may also be affected by other variables that were not considered in the present study (for example, personal experiences and cultural, social or demographic factors). Consequently, teacher ratings should be considered as biased estimates of the "true" characteristics of teaching standards. As a result, theoretical definition of teaching standards and research on the importance and applicability of teaching standards should take these variables into account while attempting to identify, define and/or classify standards and assess the importance and applicability of standards based on results of empirical and/or theoretical evaluations of expert ratings.

On the other hand correlations among praxis consultants were less frequent and lower. Particularly, evaluations of difficulty of standards, evaluations of characteristics of cooperation and self-management standards, occupational satisfaction and dissatisfaction with the cooperativeness within the school were either completely uncorrelated or only rarely involved in correlations. These results seem to suggest that the praxis consultants constitute the only group that can be seen as an assemblage of real experts who are able to evaluate teaching standards exclusively from a professional point of view. But this conclusion would ignore the existing - although limited - number of correlations also found in this group, especially between self-efficacy and a considerable number of evaluations of the importance and relevance of standards for teacher education. On the other hand it would be wrong to conclude that the praxis input is entirely subjective and completely out of place with reference to definition and evaluations of teaching standards. Unquestionably, the input from praxis can provide important insights with reference to frequently occurring teaching situations and point to key problems that teachers must handle in the classroom, at school and while cooperating with other teachers and/or institutions. However, in light of the present results, one must conclude that definitions and evaluations of characteristics of standards require a more objective methodology and a substantial scientific approach.

Limitations of these implications may derive, of course, from the small or medium effect sizes of the relationships found. Furthermore, psychological variables were not assessed among politicians, school inspectors, school directors, educational researchers and other experts, which means that correlations for this group are missing.

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Appendix

A. Theoretically grouped standards

Table A1: Learning process related standards: diagnostic standards

ID	Standard
8	The teacher is able to understand whether the students qualify for the vocational school. He or she is also able to recognize who needs special assistance.
24	The teacher is able to assess learning difficulties, aggression, anxiety and sources of failure with reference to achievement. He or she is able to cope appropriately with these problems.
39	The teacher is able to assess the developmental level of the students with reference to various developmental domains. He or she is able to adjust his/her teaching according to the results of these observations.

Table A2: Learning process related standards: assistance standards

ID	Standard
19	The teacher is able to use students' work experiences to build models and enhance competence profiles.
25	The teacher is able to develop various learning strategies in cooperation with vocational students. He or she is able to assist students during the strategy application process. He or she can improve students' reflection on learning..
21	The teacher is able to cope with errors in a wide spectrum of situations. He or she is able to discuss mistakes in order to improve long life learning.

Table A3: Learning process related standards: Evaluation standards

ID	Standard
16	The teacher is able to assign, examine and explain homework.
44	The teacher is able to give feedback at different times and in various ways.
27	The teacher is able to evaluate students' achievement in various ways and with different instruments.

Table A4: Cooperation and self-management standards: self-management

ID	Standard
17	The teacher is able to recognize his or her level of work load and identify causes of burnout. He or she knows how to adopt measures of self-protection and can accept assistance.
31	The teacher is able to critically evaluate his or her own teaching. He or she knows how to analyze the evaluation outcome and is able to make use of these results in the attempt to improve teaching.
32	The teacher is able to analyze his or her own behavior and/or teaching. He or she is able to deal with feedback.
33	The teacher knows how to work out a meaningful training program that fits his or her actual professional situation. He or she is able to carry out this program and put the results into practice.

Table A5: Cooperation and self-management standards: cooperation

ID	Standard
9	The teacher is able to deal with cooperation problems within the school setting.
22	The teacher is able to design, carry out and evaluate projects with reference to school development curriculum and teaching.
14	The teacher is able to stand for the school- and instruction concepts in the context of parents instructor evenings, excursions, etc.
23	The teacher is able to create a confidence base with the persons responsible for training from the training enterprise through regular exchange and can resolve difficulties of the students in collaboration with the training enterprise.
28	The teacher is able to examine the work and training situation within a vocational field (apprentice selection, training models, test procedures) and use the results as a basis for rearrangement of instruction.

Table A6: Teaching process -related standards: Planning, Setting up lessons

ID	Standard
2	The teacher is able to formulate, implement and monitor goals at different levels and implements objectives in order to target the instruction with reference to content and methodology. He or she can implement the syllabus taking into account the particularities of each topic.
3	The teacher is able to work out examination questions and assignments with reference to learning objectives. He or she can set different forms of examination and examination procedures in a purposeful way.
5	The teacher is able to organize selected subject matters according to the logic of learning (e.g. from the concrete to the abstract, from the simple to the complex), and can put them into practice using different visual tools and teaching resources.
41	The teacher is able to produce suitable learning materials according to the syllabus and the available educational resources.

Table A7: Teaching-related standards: Teaching methods

ID	Standard
1	The teacher is able to structure the lectures to be offered making use of a variety of teaching resources in order to make sure that all learners fully understand the contents of his/her lessons.
7	The teacher is capable of arranging his teaching on an individual basis and is able to support all learners at every stage.
10	The teacher organizes different forms of group instruction, supports group work and integrates the results of this work into further educational purposes.
29	The teacher is able to ask questions and can take up the answers of the learners. He or she can evaluate and prevent potential consequences of this behavior.
13	The teacher can plan, carry out and evaluate the instruction according to the principles of action orientation (personal experience, relationship to situation etc.).
18	The teacher is capable of applying different teaching methods, can relate them to the purpose of each teaching unit and evaluate the results. He or she is able to combine methods in a flexible way.
4	The teacher is able to select and install media and communication equipment (i.e. computers, internet, room projectors, and movies) in order to improve teaching and instruction.
43	The teacher is able to split learning into temporal and educational learning phases. The rhythm between comprehension, preparation and reproduction will be observed in an optimal way.
26	The teacher is able to stimulate, support and systematically evaluate chains of internal actions (operations such as comparing, deriving, representing etc.).
30	The teacher is able to meet the trainees on the common ground of their previous knowledge and can build up, deepen and practice new concepts. He or she can systematically incorporate learning transfers into instruction.
36	The teacher can flexibly incorporate unforeseen elements into instruction, or can clarify them and still stick to the overall goals that had been previously set.
12	The teacher is able to estimate the degree of knowledge of his/her trainees and find out whether the necessary prerequisites are met. He or she is capable of distinguishing between internal and external elements.

Table A8: Learning conditions and –environment

ID	Standard
42	The teacher is capable of organizing learning situations. He or she is able to give clear instructions and is capable of paying attention to the whole class as well as to individual trainees (class management).
45	The teacher is able to apply different strategies in order to enhance motivation.
6	The teacher is able to set up rules and achieve acceptance of these rules.
20	The teacher has an excellent attitude towards instruction and is capable of encouraging and inspiring his/her trainees. He or she is able to exhibit positive expectations both verbally and non-verbally.
37	The teacher can put himself/herself into the trainees' youthful world of vision and experience, and is able to understand critical remarks and problematic forms of behavior. He or she adapts the lessons according to the level of expectation of young people.
34	The teacher is able to support the integration of trainees from other cultures according to different models and concepts.
35	The teacher is able to promote pro-social behavior (helping, supporting, being available, etc.). He or she is aware of his/her social responsibility and makes use of his/her function in a purposeful way.
40	The teacher is able to emphasize different values within moral, political, social, religious and aesthetic areas, and promotes the moral development of his/her trainees.
11	The teacher identifies situations in which people are hurt or offended (disrespect, insults, jealousy, robbery etc.). He or she is able to seek various solutions (vigorous action, round table, mediation etc).
15	In case of conflict (aggressive behavior, bullying, assaults, etc.) the teacher is able to recognize the structure of the conflict and is capable of applying different methods of resolution, either independently or in collaboration with the trainees.
38	The teacher is able to identify situations demanding negotiations and is able to carry out negotiations fairly. He or she can apply a variety of negotiating techniques.

B. Scales

Table B1: Items and psychometric properties of the teacher identity scale

Items	Corrected item-total correlation
At heart I am a vocational teacher	.536
I am a good teacher	.440
I am proud of being a teacher	.560
If somebody refers to me as a teacher, I beam with pride	.480
I am a talented teacher	.495
At heart I am not a teacher (-)	.547

Table B2: Items and psychometric properties of the scale to assess dissatisfaction with the cooperativeness within the vocational school

Items	Corrected item-total correlation
If the disposition to cooperate within vocational schools were higher it would be possible to design the lessons in a more appropriate way	.540
I am satisfied with the collaboration within the vocational school (-)	.665
There is a lack of cooperativeness at the vocational school	.691

Table B3: Items and psychometric properties of the occupational satisfaction scale

Items	Corrected item-total correlation
If I could have a second chance I would not become a teacher (-)	.316
I like teaching	.387
I am satisfied with my work	.511
I have no chance to fulfill my goals at this vocational school (-)	.464
As a teacher at this vocational school I feel as free and self determined as teachers should be	.349

Table B4: Items and psychometric properties of the teacher self-efficacy scale (adapted from Schwarzer)

Items	Corrected item-total correlation
I am convinced that I am able to develop creative solutions that I can apply to revise unfavorable educational structures	.326
I am convinced that I am able to successfully teach all relevant subject content to even the most difficult students	.376
I know that I can maintain a positive relationship with the taskmasters even when tensions arise	.371
I am sure that when I try really hard, I am able to reach even the most difficult students	.557
I am convinced that, as time goes by, I will continue to become more and more capable of helping to address my students' needs	.365
Even if I get disrupted while teaching, I am confident that I can maintain my composure and continue to teach well	.429
I am confident in my ability to be responsive to my students' needs even if I am having a bad day	.471
Even if I try really hard I know that I will not be able to cause significant changes (-)	.376