FRITZ OSER

"I KNOW HOW TO DO IT, BUT I CAN'T DO IT"

Modeling Competence Profiles for Future Teachers and Trainers[1]

ISSUES OF DEFINITION

There is an ongoing debate in higher education about the extent to which both a knowledge base and a competence profile are needed, and how these two elements can be successfully combined. In this context, it is necessary to be aware that a) competence is not the same as academic knowledge and b) academic competence is not the same as professional competence. With regard to b), solving a mathematical task for examination purposes is not the same as a) an engineer using mathematics to calculate the weight of a bridge to ensure pressure security. However, both a) and b) can be combined, in that a calculation of the bridge's weight could itself become an examination task. To have competence means to know how things work, whereas to perform successfully means to be able to demonstrate that competence. Both factors substantially depend on each other. However, b) alone can often create a situation in which professionals feel that they know how to do something but cannot actually do it.

Nevertheless a) is more complicated than b). It includes questions like "What constitutes the difference between knowledge and competence?" and "Why do we speak about competence profiles?" In order to be able to clarify this difference I use the case of a student in developmental psychology. This student needs to be aware of key factors of cognitive development, language development, moral development, physical development, motivational development, and perceptual development. Developmentalists require knowledge of stages (critical), phases, styles, developmental transformation models, and research techniques for longitudinal and cross sectional measurement, including developmental modeling techniques like discontinuity/continuity progresses, and special issues related to contingent life phases like childhood, midlife, and old age. Such knowledge can be acquired by studying the relevant textbooks. However, the development of a competence profile implies the ability to perform tasks like analyzing and identifying the language gaps of a first grader who is experiencing difficulties in expressing feelings, or diagnosing the social deficits of students in adolescence under situational peer group pressure, or applying the concept of the "unhappy moralist syndrome" (Oser & Reichenbach, 2000) to different age groups by using varying forms of testing. Some of these competence profiles relate to educational psychology and others to psychological counseling. Another good example would be treating people from three different age groups who are experiencing motivational difficulties in terms of their academic

S. Blömeke, O. Zlatkin-Troitschanskaia, C. Kuhn & J. Fege (Eds.), Modeling and Measuring Competencies in Higher Education: Tasks and Challenges, 45–60.

self-concept, with particular reference to the "big fish/little pond" effect. Such complex competence profiles are based on situations in which professionals need more than just knowledge. They also require a capacity for situational analysis, combining different forms of knowledge, creating action blueprints and finding effective ways of changing a situation.

A RESOURCE MODEL OF COMPETENCE PROFILES

This leads us to the question what a competence profile should include. Besides ethical, motivational and emotional aspects a competence profile encompasses a number of specific competences, for example as named above familiarity with language deficit correction programs and the ability to test adaptation capacities, as well as observational and perceptive skills which have been developed in various areas, like in child-care. Whereas the acquisition of academic knowledge includes only the process of learning material from canonical textbooks on developmental psychology, a competence profile is more complex. Even if a vast amount of scientific knowledge material exists, its effective actualization depends on how well those in the field can apply it. That is why the notion of competence profile can only be used if it can be applied to situations in which a professional who already has the relevant background knowledge is able to act. That means that the knowledge does not merely exist, but it is applied for solving concrete professional problems. A professional needs to be aware of the nature of the specific situation and be able to take relevant action. This involves being able to choose the appropriate action from a range of potential forms of such actions. In the case of developmental psychology this may include an awareness of the relevant developmental framework and the consideration of similar cases and may involve the selective application of existing rules, the formulation of diagnostic statements, and the planning of a practical program which takes these factors carefully into account. We speak about diagnostic and counseling competences. If knowledge is not applied in an appropriate manner, it leads to the problem that people who possess the knowledge do not know how to deal with it. And even if they know how to do it they cannot really do it.

Thus, in order to exercise a professional competence profiles successfully the professional will require:

a) more knowledge than he/she will actually need
b) additional situational, social and applicative abilities (such as learning climate adaptation, the ability to plan therapy for a child, and the ability to analyze systemic influences for a specific handicap)

A similar analysis of professional requirements can be applied to teacher training programs. As Shulman (1987) states, a teacher needs to acquire a range of different types of knowledge, including content knowledge (CK), pedagogical content knowledge (PCK), pedagogical knowledge (PK), management knowledge (MK) and developmental knowledge (DK). The teacher needs to acquire all these forms of knowledge, but must be aware that such knowledge is not in itself sufficient for

successful teaching. This is why, about 10 years later, this author created the notion of "signature pedagogy" to refer to typical professional situations which require special professional performative competences such as "bedside teaching" for medical doctors, "weight testing" for engineers, and "defending games" for lawyers. Such signature situations rely on specific competence profiles for particular performative occasions. There are certain situations that teachers need to be able to overcome by developing a relevant competence profile with a similar basic structure. In order to do this, at least two sources are needed, namely a source of academic knowledge bases and a source of practical field necessities. Both are complex and action bound. Thus, the term *competence profiles* is used to include many single actions and complex capacities.

One examples of a teacher competence profile based on these reflections would be: The teacher is able to organize different forms of group work which all students participate in and profit from and the result is integrated into the next phase of the teaching-learning process. Another example would be: The teacher is able to solve group conflicts between students in concrete daily classroom situations by forming roundtables and setting the criteria for realistic discourses (see Oser & Oelkers, 2001).

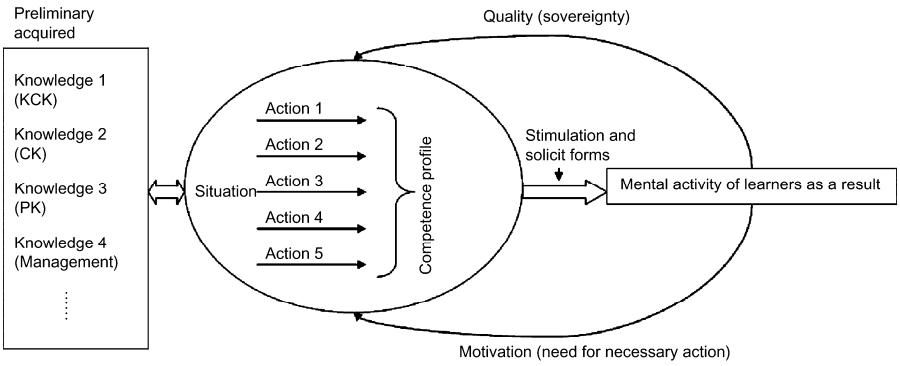

Figure 1. Resource-model of competence profiles (Oser, in prep).

Each competence profile mentioned is based on a resource-model of competence (see figure 1) which includes different single competencies that are connected through the situation in which these actions must take place, including also a sense of the necessity to act, as well as a measure of quality that is based on respective activity, namely the concept of reference. Reference means directedness to the stimulated inner activity of the learners, which consists of the so-called operations they perform as a result of that teaching. For each competence profile the same resource-model can be used. However, each model must be applied differently, particularly in terms of situation-specific knowledge, with situation-specific practical actions and a situation-specific sense of necessities. (This notion, which is specific for teaching, assumes that professionals must sense what the best thing to do is in any particular moment. They need to be able to make judgments

about such factors as presenting content, supporting learning, and providing such elements as scaffolding and reconciliation (Oser & Heinzer, 2010).

ON THE GENESIS OF PROFESSIONAL COMPETENCE PROFILES

In the belief that competence profiles applied by vocational education teachers (VET) can provide useful models for the formulation of relevant competencies, we collaborated with experienced vocational teachers. With the help of a Delphi-study (Häder & Häder, 2000; Brosi, Krekel, Ulrich, 1999) 45 competence profiles were produced that these teachers applied in daily teaching situations and were validated in a representative survey. The strategy was directed by a "bottom-up" process and included asking these experienced VET teachers to name central teaching situations that required the activation of such competence profiles. In total we used four rounds, with the first and the second rounds consisting of panel discussions to identify complex situations in the professional teachers' daily work. The third round consisted of a condensation of these situations into 45 competence profiles which we grouped according to plausibility statements into four main classes and nine subgroups (see Table 1).

Table1. Main classes of competence profiles for VET teaching (see also Heinzer et al., 2009)

Main-groups	*Sub-groups*
A Competence profiles of the teaching act itself	**A1** Preparation skills
	A2 Methods and styles of teaching
B Competence profiles of the learning environment	**B1** Social conditions for learning (social climate)
	B2 Value and conflict management, classroom organization
C Competence profiles for supporting learning	**C1** Diagnostic capacities
	C2 Monitoring skills
	C3 Evaluation abilities
D Accomplishment of vocational requirements and cooperation	**D1** Cooperation within the school and with the firms
	D2 Teacher's coping strategies

Three specific examples will be focused on here. Firstly, when "the teacher is able to organize learning situations, he/she gives clear and friendly directives for engaging in tasks, being able to keep each single student and each of his/her learning states in view". This competence profile falls under category C2 as "monitoring capacities of the teacher". Secondly, a situation in which "the teacher is able to provide supporting feedback – in critical situations when students give incorrect answers or have chosen an inappropriate strategy". This would indicate a C3 competence profile. Thirdly, a situation in which "the teacher can connect his teaching with what happens at the work place of the apprentice". This competence profile formulation falls under group D1. All these formulations include a group of

teaching actions that are guided by the situation. In the first example, the situation has to do with tasks that the teacher arranges. For instance, we can imagine that he/she sets the task of solving a given mathematical problem, interpreting a technical figure or analyzing a complex text that discusses forms of participatory democracies.

With regard to the competence of these five groups, we checked if they were a) related to concrete situations in the classroom or the firm, in which an apprentice acted, b) if they were part of a concrete learning chain (tailored to be relevant to this part of the lesson), c) if they were part of a cluster of professional actions, d) if there was a benchmark with respect to quality, and e) if there would be a possibility of chaining with respect to adjacent competence profiles.

The fourth round consisted of a validation ($N = 793$) with respect to the following criteria: 1) importance, 2) frequency of application, 3) difficulty of application, and 4) implications for teacher training in general. The sample consisted of 470 professional teachers (59%), including 204 teachers without a diploma (26%) and 115 non-teachers (15%). For the presentation here we chose only two examples (for others see Heinzer et al., 2009). Tables 2 and 3 elicit some surprising results. Preparing instructions and learning conditions were seen as the most important competence profile groups, although they were seen as being the least difficult. On the other hand, collaboration with colleagues and managing conflicts were seen as the least important, but the most difficult. However, these are only examples selected from a comprehensive study of teacher competences (Oser & Bauder, in prep.)

Table 2. Estimations of the importance of competence profile groups (see Heinzer et al. 2009)

Under groups of Competence Profiles	Mean	Standard Deviation
B1: learning conditions	2.684	.147
A1: lesson preparation	2.618	.068
D2: coping of the teacher	2.505	.065
A2: mediation forms	2.457	.118
C1: diagnosis	2.456	.138
C2: accompaniment	2.477	.621
C3: evaluation	2.317	.186
B2: value- and conflict management	2.315	.147
D1: cooperation with the College	2.18	.179

(0 not important at all, 1 rather not important, 2 rather important, 3 very important, m = 2.44, sd = 0.195)

Table 3. Estimation of realization difficulty (see Heinzer et al. 2009)

Under groups of Competence Profiles	Mean	Standard Deviation
D1: cooperation with the College	1.994	.164
C1: diagnosis	1.643	.055
B2: value- and conflict management	1.527	.155
D2: coping of the teacher	1.373	.189
C2: accompaniment	1.363	.231
C3: evaluation	1.353	.076
A2: mediation forms	1.33	.204
B1: learning conditions	1.274	.188
A1: lesson preparation	1.243	.105

(0 not important at all, 1 rather not important, 2 rather important, 3 very important, m=1.38, sd=0.21)

In using these examples, it is our intention to illustrate how we generated and tested the 45 competence profiles of professional teachers, with reference to their reasons for going into the field of teaching, as well as to collect ethnographically what teachers do, then to model these actions – in cooperation with the teachers themselves – into competence profiles. Finally we strategically grouped them into four, and later nine, competence groups. The most important step we took after completing this process was to go back and validate these competences by asking a comprehensive sample of teachers, non-teachers and special technical instructors about the necessity, the application frequency, the quality structure and the importance of these competences in the setting of teacher training.

A BOTTOM UP APPROACH

To summarize what has been said so far, behind the genesis of such competences there is a principle that is connected to the relationship between what we know theoretically about teaching and what actually happens in the field. We, the researchers, proceeded – as figure 2 suggests – from the "bottom up", connecting the realities in the field to theoretical reflections and then validating them from the top down. This entire procedure was repeated in terms of the Delphi study mentioned earlier, and with regard to such factors as observation studies and expert questioning. The basic idea was to focus on the elements, which professionals actually consider in their practical daily world.

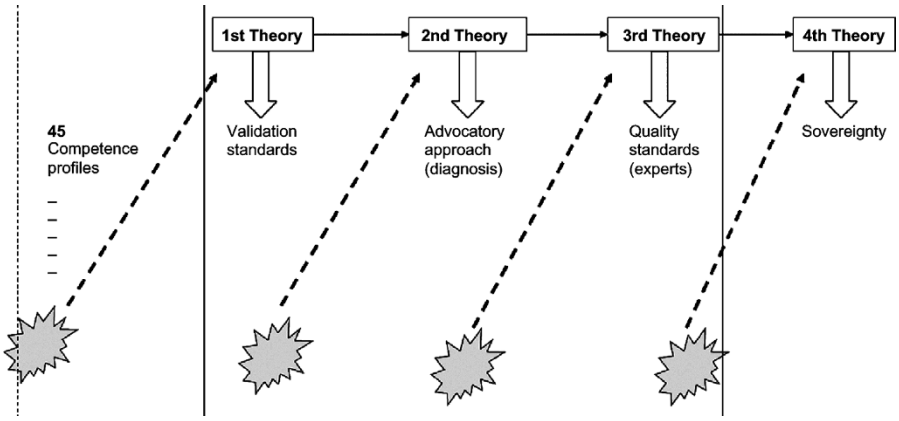

Figure 2. Theoretical elements of the bottom up approach: Delphi studies, advocatory approach, expert studies.

As shown in figure 2, a bottom up approach to the development of teacher competencies and a top down falsification through different modeling procedures were always used. This resulted in different theoretical elements generated in each phase. Firstly, there was the simple creation of competence profile formulations through the mentioned Delphi study and the respective validation questioning of a representative sample of VET teachers (including non-teachers and new teachers). Step two included filming of example situations in which competence profiles were required along with quality judgments of teachers carried out using an advocatory approach (see below). The third step consisted of the validation of the film vignettes by experts. These experts began their work by looking at the concrete teaching situations and then structured them by using classical quality criteria. A fourth step was the development of a "sovereignty measure" which was conducted by first looking into the field of modeling teacher competencies. For this we used what we call "daily simple action clusters" (rather than best practice, exceptional or extraordinary behavior).

THE AVOCATORY APPROACH: A VALIDATION OF TEACHING QUALITY

The avocatory approach is a method in which teachers (professionals) judge the competence profile of a colleague by means of a film vignette. This depicts a unit of a lesson which has a relatively closed form, and which can be said to be clearly distinguishable from other units. As figure 3 suggests, the judgment of the person responsible for rating the work gives hints about their capacity to judge others. The way that a person uses words in making this judgment shows their sensitivity to the professional issues in the situation (competence profile) depicted in the film.

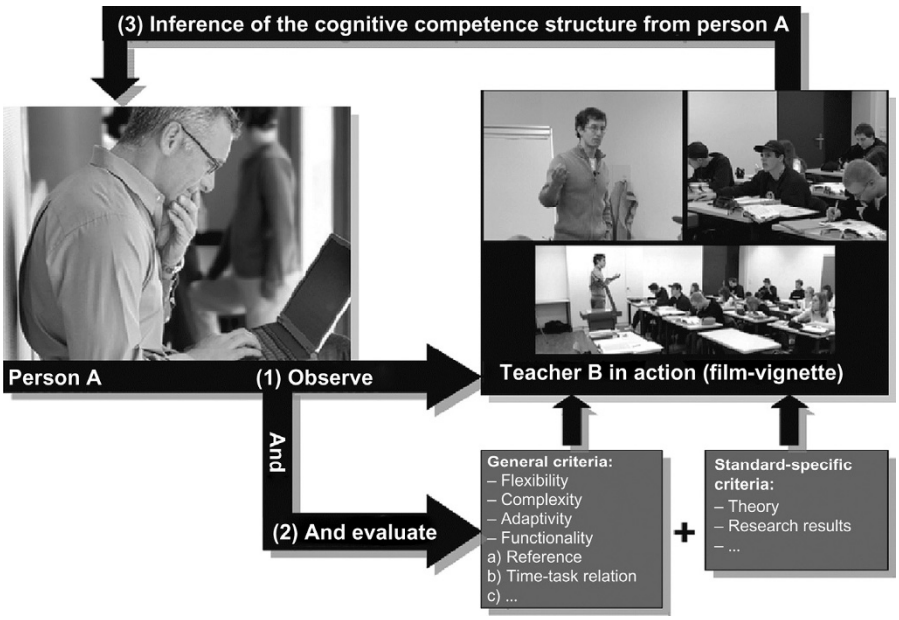

Figure 3. Scheme of the advocatory approach: Teachers judge teachers and thus indirectly elicit their own competences (see Oser et al. 2009).

As researchers, we then assessed the judging teacher, comparing him/her with a representative sample of colleagues and then stating what we think he/she recognized and what he/she did not observe. We then formed a quality judgment of the work of that evaluating teacher. In addition, since the teacher would be making judgments with respect to clear cut general and/or standard specific criteria (see table 4), we could compare this judgment with the judgment of other professionals, such as new or experienced teachers, non-teachers, teachers without diplomas, or with other experts. This would enable us to develop a sensitivity measure for professionals with respect to creating one single competence profile. As seen in figure 3, the teachers received an online questionnaire which presented the task of evaluating what they saw according to their best knowledge and experience, and to respond according to the specifics of the situation (a) and to general instructional criteria (b) (see table 4).
Table 5 represents an example of a comparison between teachers' and non-teachers' estimations. It became clear that all non-teachers estimated levels of quality at a significantly higher rate than teachers. Thus, in general they believe that what the teacher does is appropriate with regard to quality. This indicates that non-teachers demonstrated a weaker level of evaluating teaching issues. This may be because they remembered their time at school, but had no criteria to judge the teaching professionally. We did not identify differences between new and experienced teachers, but between teachers and non-teachers.

Table 4. Quality dimensions: specific and general (cross standard) criteria for evaluating a film vignette according to the advocatory approach

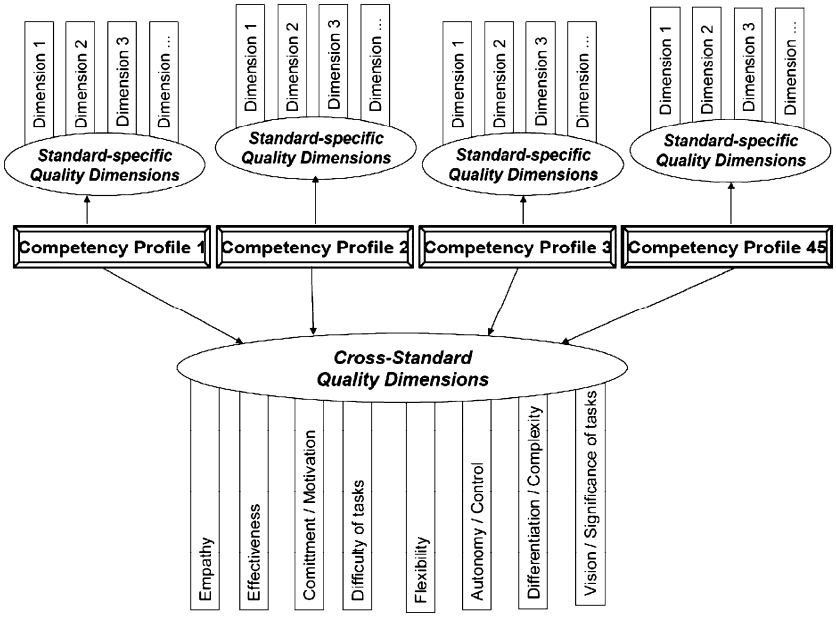

Table 5. Differences between teachers (LP) and non-teachers (N-LP) judging film vignettes according to general, cross-situational criteria

		Mean	Standard Deviation	*t*
Empathy	N-LP	4.4907	0.85761	2.93**.
	LP	3.9250	0.87004	
Effectiveness, division of time constraint	N-LP	4.1358	0.76939	2.32*
	LP	3.7375	0.77167	
Commitment, motivation (teacher)	N-LP	4.6543	0.98485	3.98**
	LP	3.7500	1.03184	
Commitment, motivation (trainees)	N-LP	3.8519	0.91793	2.58*
	LP	3.3750	0.79556	
Difficulty of tasks, Adequacy of taks	N-LP	4.2130	0.71288	0.53
	LP	4.1188	0.82579	
Flexibility	N-LP	4.3889	0.87217	2.37*
	LP	3.8979	0.94634	
Autonomy, control	N-LP	4.1259	0.76891	2.51*
	LP	3.6275	0.92872	
Differentiation, complexity	N-LP	4.0648	0.76458	4.06**
	LP	3.2813	0.89688	
Vision, importance of tasks	N-LP	4.7269	0.62600	2.66**
	LP	4.3063	0.73344	

* = p≤.05; ** = p≤.01

BENCHMARK SETTING AND EXPERT JUDGMENT

The last part of our program consisted of discussing benchmarks for each given criterion. This involved investigating whether there was a way of finding out which evaluation would be "right". This question is extremely important because the advocatory approach measures competence sensibility but does not measure performance accuracy.

It may be necessary to explain what we mean by "benchmark setting". This notion relies on the assumption that varying forms of competence realization exist. When observing a teacher, many people (even experts) believe they know how to assess them. However, they tend to disagree about what criteria to use to make such a judgment. It is possible to set certain benchmarks by calculating a mean average of the quality estimation of 600 or more teachers. It is also true that famous pedagogues, or certain charismatic teachers, have defined what they consider to be "good teaching". However, such definitions remain fundamentally unsatisfying, because they all somehow include a blind matrix, a random quality or unjustifiable positions.

We attempted to use a more quantifiable method of assessment. For each of the filmed vignettes, we invited three different experts (see advocatory approach) to participate. The first expert was one whose competence was mainly in the area of content knowledge. The second was a specialist in pedagogical content knowledge and the third was a teacher trainer who was also responsible for practical issues. They watched the film together, discussed each quality indicator exhaustively and were then asked to bring their evaluations of the quality to a consensus. The results are shown in figures 4 and 5, representing some examples of the differences.

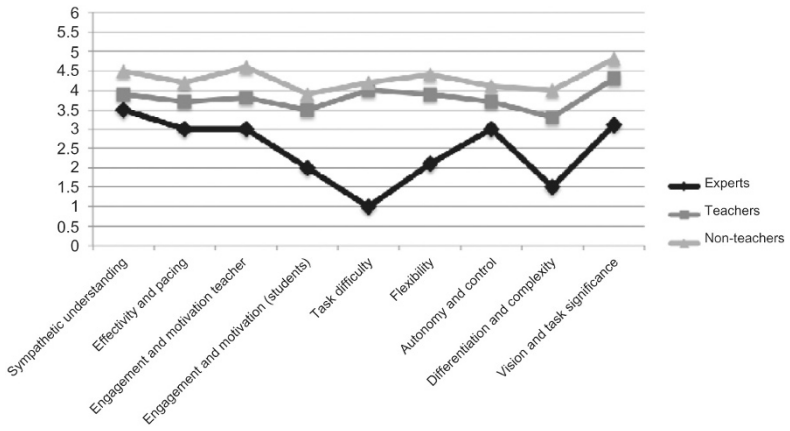

Figure 4. Example of quality estimations of teachers, non-teachers and experts regarding different cross-standard dimensions, targeting the competence profile "organizing powerful group work" (see Oser & Heinzer, 2010).

Figure 4 indicates that the judgment of experts tends – with respect to cross-standard dimensions – to be more severe than that of teachers and non-teachers. The teachers tended towards a more positive mean average and the experts towards a more negatively framed extreme.

In figure 5 we again present the mean values of teachers from different schools and the experts' judgments on "giving supportive feedback" with respect to standard-specific dimensions. The figure, astonishingly, yields a different result. The experts judge the indices in a more extreme manner, as being either substantially better or substantially worse than the teachers.

These two results made us aware that experts are either stricter (see figure 4) or that their judgment is more extreme in a more positive or negative way (see figure 5). This indicates that the benchmark setting of experts for quality judgments is substantially different from that of the professionals themselves. This can be seen as either a normative guideline, or as evidence of the need for change. – Competence profiles thus must be validated by different groups of users. This is in addition at least one way to begin to understand what kind of knowledge each competence profile contains.

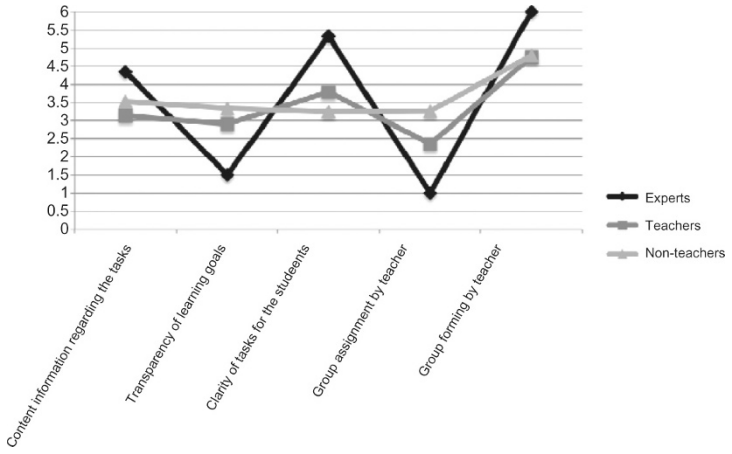

Figure 5. Results of the extreme experts' estimations compared to teachers' and non-teachers' judgments on standard specific dimensions: the case of giving feedback.

PROFESSIONAL FOUNDATIONS

Finally, it is necessary to ask ourselves about the legitimation criteria for each given competence profile. Apart from the above discussed Delphi study, in Fig.6, central elements are presented by which we can judge the competence profile of a teacher (VET teacher) as valid and reliable, namely a) entitlement, b) accountability, c) availability and d) professional status. All four are necessary for the inclusion of a competence profile into a new curriculum of the professional

competences that need to be demonstrated within each teacher training setting. How do we apply these four criteria to a concrete competence profile? As an example, let us look into the Pharmacy curriculum we helped to develop with the support of pharmacy professionals. The competence profile is:

> The vocational trainer can measure the trainee's level of responsibility in comparison to their year of learning. Thus the trainer can help trainees to estimate the quality of their own part-competencies and can help them expand them, so that the learner can progress slowly from controlled to autonomous actions.

Here are two examples that show the necessity of applying the four criteria:

> A customer had ordered a pharmaceutical product on the previous day. She had requested that the product be prepared early in the morning because she had to go to work. The apprentice forgot to get the product ready. Because of this the customer missed the bus, which caused her considerable annoyance.

Or:

> The pharmacy has a little online candy shop. The ordering and buying procedures are similar to those used for merchandise management in the pharmacy itself. The learner is given direct responsibility for the online shop.

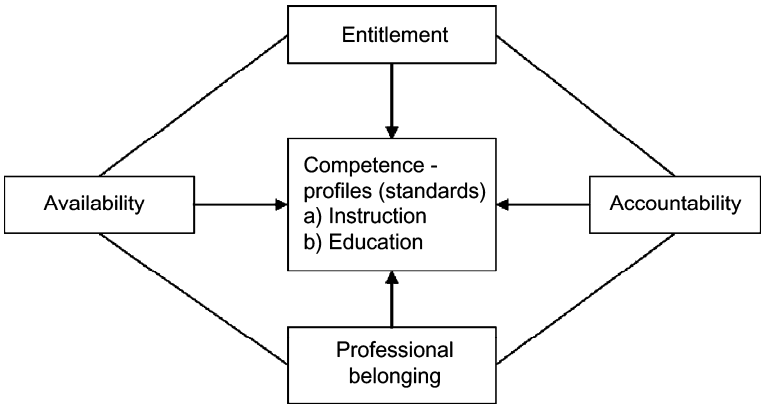

Figure 6. Professional criteria for declaring a competence profile as valid.

First, only the chief pharmacist has the right and the knowledge to distribute such responsibilities. She/he is entitled to do so (criteria a). It is her/his duty to estimate what a learner can do and what he/she supports. No outsider can ask for the same right. No one has even the right to tell her that she must distribute responsibilities. Because of her certification, he/she is the only one who publicly and officially has the right and the duty to judge what autonomy can be given to the apprentice and what must be taken under his/her control. So he/she in the first example demands

hard consequences from the apprentice, in the second he/she must have an eye on what the apprentice is doing. Both situations refer to complex competence profiles.

The accountability criteria b) go beyond those of a). If something happens to the apprentice, the training supervisor is fully responsible. The learner is not responsible but the trainer (teacher) has to take all the consequences and must be able to justify publicly why he/she acted in this way. We can argue that, because he/she is qualified, he/she is accountable. This issue is extremely important for measuring the competence of primary or secondary teachers who often think that the school they work in is accountable for their actions, or who may think that they are only accountable for their competence as instructors and nothing else. In identifying competence profiles for assessing professional competence, this needs to fall under the rubric of being responsible if it is applied. "To assign the learner adequate responsibility" belongs to this group because the teacher must be responsible for all the possible consequences.

Availability c) is the third criterion for choosing a competence profile as being absolutely necessary professionally. Teachers or training supervisors must be available for the student during the time he/she is in charge. Their role is a more cognitive presence, a form of participation in the other's existence. In this way, indifference is avoided. If a teacher or a training supervisor assigns responsibilities to a student, as formulated in our example, he/she clearly cares about the student's development. In caring he/she is available in a sense of always having an eye on what happens (see Watson et al., 1997; Noddings, 2002). Availability means not only "I am here if you need me" but "I am here as a part of your professional development".

The fourth criterion is professional belonging. If we choose a competence profile as being valid for the teacher training or the supervisor's training, we must recognize that the whole group of professionals in the same field accepts it as being necessary, including for instance the teachers' and pharmacists' unions. Medical doctors are strongly organized in professional groups, mechanics are strongly organized and teachers have their professional community. All these groups must accept the basic competence clusters of their own profession, and professional belonging means that members must also accept the respective standards which are being applied.

Thus, competence orientation – since it is more than knowledge orientation – is based on situations in which a cluster of professional acts must be adapted so as to change the respective situation precisely. It is necessary to discover, formulate and develop these competence profiles through a bottom-up process with the help of the respective professions. The justification of these competence clusters relies on what we may call the quadruplet transparency, namely the process of legitimation through entitlement, accountability, availability and professional belonging.

CONCLUSION

In this study, our intention was to show that competence profiles should be developed from the bottom up and theoretically modeled from the top town. They

must be formulated and validated with the help of professionals. As a further step it was useful to make these profiles visible by using film or story vignettes. Finally, it is only appropriate to judge them according to indices that are chosen in advance and are differentiated according to quality dimensions. This whole program was realized by the leading house "Professional Minds", and with it by an impressive group of young researchers (see footnote 1).

Our hypothesis is that this approach may help to overcome the fact that many of our university students leaving university say "I know how to do it but I can't do it". They refer to knowledge and maybe to imagined actions. In addition, the entire bottom up approach can lead to a better consensus with respect to a new competence oriented curriculum. It would be enrooted in both, in university knowledge and in professional situations. And the advocatory approach can be a reminder of what a practical job actually consists of. In this way professional knowledge becomes embedded in the professional field in which the real problems are generated.

What university professors do is transmitting knowledge. This is important, and it is necessary for structuring a knowledge field. But competence profiles and the necessity to develop them first give this knowledge a different meaning and give the student teachers a higher motivational framing.

We can surmise that similar approaches are necessary for all tertiary academic competence formulations. People must come together and must be urged to look at how they operate in their own practical fields to ensure that they are really competent. As stated earlier, each competence profile is constructed by combining many different single competences (fig. 1), and each competence requires specific knowledge. Thus when using our approach, knowledge is presumed, or with other words knowledge and competences come together. If the bottom up approach reveals it as being hidden, we will then know that in most cases textbook learning was the only way to lead the individuals towards certification. This would be a great pity. Coming back to the title at the beginning of this paper we must state that the entrance into the competence area opens up a huge application field for discovering basic acting.

NOTES

[1] Co-researchers in this project were S. Heinzer, T. Bauder, P. Salzmann, C. Joho, S. Grueter.

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Fritz Oser
Institute of Education,
Université de Fribourg, Switzerland