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THEMATIC ISSUE

TOWARDS EXPERTISE IN THE TEACHING PROFESSION

Guest Editor

Michaela Píšová

Institute for Research in School Education, Faculty of Education,
Masaryk University, Brno

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Editorial

This monothematic issue focuses on teachers and the teaching profession. The title *Towards Expertise in the Teaching Profession* suggests that it attempts to tackle two interrelated burning issues – professionalisation of teachers and their professional development. Both of these represent a sine qua non condition for the raising of quality in education, a social demand which may be considered a pedagogical evergreen, which has, however, acquired new importance in the context of the dynamically evolving socio-political environment.

Back in 1998, in a presidential address that has become famous, President Clinton said:

> Teaching is the essential profession, the one that makes all other professions possible. Without well-qualified, caring, and committed teachers, neither improved curricula and assessments, nor safe schools - not even the highest standards in the world - will ensure that our children are prepared for the challenges and opportunities in America's third century.

This statement applies universally for education in the third millennium; it fits only too well the contemporary situation in the Czech Republic as a member of the European and global family. Yet the discourse concerning a crisis in the teaching profession is still alive and, indeed, seems to be growing in the light of results pertaining to Czech pupils in international comparative studies.

In the search for improvement, the pace of educational reforms has accelerated. Contemporary teachers may well describe their professional trajectories as periods during or between educational reforms. In the Czech Republic, for example, we are currently witnessing certain reservations in relation to neo-liberal trends underlying curricular reform processes and a silent "retreat" to more conservative approaches in a number of areas of educational policy. If we wish to use a metaphor, it looks as if the pendulum has already begun its backward swing.

Thus, many questions related to a reflection of current educational realities and scenarios for the development of education and schooling including the new roles of teachers, remain open. It is the duty and mission of educational research and theory to offer solutions and responses to these questions. In this monothematic issue *Orbis scholae* hopes to contribute to the mosaic of the complex problem of teacher professionalisation.

The issue includes a representative collection of eight articles written by a range of authors from various European countries. In his paper the outstanding British scholar Christopher Day focuses upon external and internal challenges for the research and teaching communities, upon the perils as well as excitements of "border crossings" in research conducted on and in the policy and practice contexts which are associated with what he calls "the new lives of teachers". Fred Korthagen, who is renowned for his contributions to the theory of the teaching profession as well as to the practice of initial teacher education, presents the principles of the so-called realistic teacher education approach as well as the results of several

evaluative studies into its implementation. Pertti Kansanen, well-known (not only) to Czech readers for his numerous publications in the field of pedeutological theory and practice, outlines conditions necessary for the guaranteeing of sustainable teacher education and summarises them in five theses. Michaela Gläser-Zikuda, whose main research interests include cognitive and emotional processes of self-regulated learning and innovative learning environments, offers together with her colleagues three studies that deal with the implementation of portfolios which are perceived as a driving force of change, a manifesto for a new type of teacher professionalism. Last but not least, leading Czech and Slovak specialists contribute to the palette of texts in this issue of Orbis scholae. The breadth and depth of insight into the teaching profession is complemented by two papers highlighting specific dimensions of teaching expertise: Peter Gavora describes the construct of teacher self-efficacy and discusses methodological aspects of its measurement, specifically the process of adaptation of the Slovak version of Gibson and Dembo´s Teacher Efficacy Scale (TES). The paper by Michaela Píšová and Tomáš Janík addresses the role of knowledge as one of the sources of teaching expertise, focusing mainly on the phenomenon of theory-practice gap, on the role of theoretical or academic research-based knowledge and teacher-based practical experiential knowledge and on the need for linking the two. Two large-scale research projects conducted in each of these countries are presented: Vladimíra Spilková introduces partial results of the project called The teaching profession in the context of changing demands on education carried out at Charles University in Prague and aimed at teacher education, while Bronislava Kasáčová shares the outcomes of a professiographic research project focusing on primary education teachers and their activities, which is carried out at Matej Bel University in Banská Bystrica.

The aims with which this monothematic issue of Orbis scholae was conceived, namely the problems of teacher professionalisation and teacher professional development, were stated in the introduction. It is up to readers to decide whether and to what extent these aims have been met.

Michaela Píšová

THE NEW LIVES OF TEACHERS: RESEARCH WHICH INFLUENCES

CHRISTOPHER DAY

The University of Nottingham

Abstract: *The paper focuses upon external and internal challenges for the research and teaching communities – the perils as well as excitements of border crossings in research conducted on and in the policy and practice contexts which are associated with the new lives of teachers. The paper is organised in four parts. Part 1 deals with the scholar-practitioner dilemmas faced by university teachers and researchers. Part 2 raises issues about knowledge production in which the researcher is also a change agent. Part 3 focuses, briefly, upon what research tells us about key areas of importance which affect the work and lives of teachers in schools and the nature of professionalism which those who conduct research with teachers need to understand if they seek to influence them, directly or indirectly. Part 4 ends the address by focusing upon research in education, why we do what we do in the ways that we do it.*

Key words: *scholar-practitioner dilemmas of university researchers, researcher as change agent – knowledge production of a different kind, research knowledge about teachers' work and lives of teachers, educational research obligations*

Introduction

Despite a good deal of rhetoric, there remain discontinuities between research and teaching and researchers in institutions of higher education and teachers in schools. Finley's (2005) metaphor of 'border crossings', together with Tony Becher's (1989) metaphor of 'tribes and territories' provide vivid illustrations of the current separation cultures both between university researchers and between researchers and teachers. In addition, the environments in which teachers teach and in which research in higher education is conducted have become more problematic as so called neo liberal, 'performativity', results driven agendas have invaded and changed the worlds of work, threatening hard won and treasured practices and professional identities. In academia, this can be seen especially through the creeping erosion of time to conduct research, as bureaucratic procedures continue

to increase; through the rise of research funding which is tied to short term government agendas in some countries; and, in others, the imposition of national Research Assessment Exercises through which the relative quality of research and the research environments of university departments are judged in the UK and funding distributed accordingly, social citation indexes and judgements of research worthiness based upon evidence of impact on the user communities.

This paper will, then, focus upon external and internal challenges for the research and teaching communities – the perils as well as excitements of border crossings in research conducted on and in the policy and practice contexts which are associated with what I call the new lives of teachers.

Different Worlds: Reflections on a Career Journey

I want to begin by describing, briefly, my own career journey as a means of illustrating the different worlds in which teachers, teacher educators and researchers inhabit and which separate, as a point of departure for considering the challenges which those who wish to influence others face. When I began working as a school teacher my primary concern was to educate my pupils. In order to do so, I was reflective about my teaching and drew upon documents relevant to children's learning, teaching approaches and curriculum. I had not heard about research, nor did I feel the need to read about it, beyond what was reported in the professional and educational journals to which I subscribed. My world, then, was the world of the child in the classroom. It was in this world that I sought and found my professional fulfilment. Teaching was something which I had always wanted to do.

When I became a teacher educator in a College of Education the boundaries of my world were extended and my roles became more complex. I now had responsibilities for preparing students for their work as teachers and, so, began to drawn upon the work of those who wrote and conducted research about this as well as continuing to teach and liaise with schools and teachers in which students conducted their practicum. I also began to conduct my own small scale research and to write and publish this. I had entered a different world. Finding professional fulfilment became more challenging, more uncertain in the multiple identities which I now constructed. I was a member of a different tribe, occupying a different, more contested, territory, positioned uneasily between the territory occupied by teachers and the territories occupied by researchers.

When I moved from being a teacher educator to becoming a Local Authority (School District) Schools Inspector, I found myself moving in yet another territory, this time of policy development and implementation. This world, too, had its own particular set of values, norms and expectations. There was a more limited time for considering the ontological and epistemological ambiguities or uncertainties which had characterised my time as a teacher educator. Indeed, these words were not a part of the language of this tribe. I became more accountable for my decisions to a greater range of stakeholders. What I did, the way I spent my time, was also subject to more scrutiny. My pattern of working changed so that I had "office hours"

which were dictated by the service needs of schools during the day and teachers' development in the evenings and, often, weekends. I had less choice in how I spent my time. I was able to remain reflective and encourage others to learn in different ways but the pace of policy development and implementation and the intensity of demands from different stakeholders meant that the time and opportunity for reading and conducting research was squeezed.

When, finally, I began to work in a university, a different world again, I found it amazing that colleagues did not come into work every day, that they did not keep regular office hours and that there was not one but several tribes, each of which had its own traditions, language, ways of being, and perspectives on teachers' worlds; and each of which occupied and fiercely guarded its own territory. There were only a limited number of, usually well patrolled, 'border crossings' which allowed for the trading of ideas, methods of inquiry and the occasional collaborations between the academic members of each tribe and even fewer for the kinds of regular dialogue and knowledge exchange with policy makers and practitioners which might lead to influence them.

The paper is organised in four parts. Part 1 focuses upon the scholar-practitioner dilemmas faced by university teachers and researchers. Part 2 raises issues about knowledge production in which the researcher is also a change agent. Part 3 focuses, briefly, upon what research tells us about key areas of importance which affect the work and lives of teachers in schools and the nature of professionalism which those who conduct research with teachers need to understand if they seek to influence them, directly or indirectly. Part 4 ends the address by focusing upon research in education, why we do what we do in the ways that we do it.

PART 1: THE WORLDS OF UNIVERSITY RESEARCHERS: SCHOLAR-PRACTITIONER DILEMMAS

Researchers in higher education live in uncertain times. Their work has become more intensified and diverse, with more demands from government and the media for better 'value for money', accompanied by calls for research to be 'useful' to and used by practitioners. As a term, evidence based as against research informed knowledge is now the new currency among policy makers as an acceptable means of creating new, useful understandings of schools, children, teachers and teaching. The ambiguities, provisionality and inaccessibility by others of much research conducted in universities may result in the very people and organisations whom it seeks to influence regarding it as increasingly irrelevant to their needs.

In a stringent critique of educational research traditions and practices in the UK, which itself has been the subject of critique by some academic colleagues, David Hargreaves, then professor of education at the University of Cambridge, claimed that:

> The £ 50 – 60 million we spend annually on educational research is poor value for money in terms of improving the quality of education in school. In fundamental

> respects the teaching profession has, I believe, been inadequately served. It need not be so. If the defects in the way educational research were remedied, research would play a more effective role in advancing the professional quality and standing of teachers. Left to ourselves, we educational researchers will not choose the necessary radical reforms. It needs others, including practising teachers, to give the firm push to get researchers on the move. (Hargreaves, 1996)

In his lecture to the national teacher training agency, now almost 15 years ago, he asserted that there was no agreed knowledge base or shared technical language for teachers, that much educational research is non-cumulative (because few researchers seek to create a body of knowledge), that educational researchers are "often engaged in bitter disputes amongst themselves about the philosophy and methodology of social sciences", that only a small proportion of educational research is applied and that even less is undertaken by practising teachers (here he compared educational research unfavourably with medical research where "there is little difference between researchers and users" p. 3), that educational researchers set their own research agendas and that they write, mainly for one another, "in their countless academic journals which are not to be found in a school staff room" (p. 3).

These gaps between researchers and practitioners betray what David Hargreaves claims, is the fatal flaw in educational research (p. 3).

> Researchers continue their work on their own self-validating terms; they are accountable to themselves; so there is absolutely no reason why they should change… In education the key fault is the lack of engagement of users, that is, practitioners and policy makers… it is their exclusion which prevents the redirection of educational research towards the improvement of practice. (op. cit p. 6).

Much of what David Hargreaves said in 1996 is still true in 2010. In many countries there is a suspicion by practitioners and policy makers of the work of educational researchers and the benefits that it brings to understanding and improving education in schools. What is interesting is that this criticism came from a much respected academic. What is also interesting is that this academic spent a considerable part of his career as chief inspector / superintendent for schools in inner London. Implicit in his lecture is not so much the instrumentalism which some might supposed is represented in his critique, but a strong, underlying sense of moral purpose. He clearly believes that educational research should be primarily for the benefit of practitioners and that practitioners should be involved, in different ways, but certainly not only as recipients as research agendas of those who are far removed from the everyday world of classroom and schools.

The implications of drawing lines of separation between policy makers, professional researchers (from the academy) and 'other' researchers (in schools) without considering their complementarity and respective development need to be carefully considered, lest continuing separation does a disservice to all. The evidence still points to a lack of use by teachers of much research where

they themselves have not been involved in the research process. By sustaining the notion of a "profession of academic educational research" removed from practitioner communities we run the risk of perpetuating this. Huberman's (1995) study of dissemination efforts in large-scale national projects of applied research lends empirical support to the importance of researchers' involvement in the organizational contexts of reform. Huberman concluded that, "research is more likely to have a strong conceptual influence on practitioners when researchers are active in the contexts where innovations are in process" (in Zeuli, 1996, p. 177). Earlier Lawrence Stenhouse (1978, p. 735) had written of his purposes: "My trade is that of educational researcher and my principal obsession the relations of theory to practice and of researchers to teachers", and of research:

> I want to make it quite clear that in reporting research I am hoping to persuade you to review your experience critically and then test the research against your critical assessment of that experience. I am not seeking to claim that research should override your judgment; it should supplement it and enrich it. All too often educational research is presented as if its results could only be criticized technically and by other researchers. But I am arguing that it should be subject to critical appraisal by those who have educational rather than research experience. (Stenhouse, 1978, p. 738)

Why is it, then, that forms of research which are, in business terms, 'close to the customer', have not been adopted as core development strategies by more than a few university departments in the universities? It is partly because the collaboration which they demand is not easy. It demands the establishment and maintenance of long-term relationships which are at the very least co-equal, in which teacher educators, student teachers, teachers, schools, teacher's associations, parents, governors, government and other agencies – all legitimate investors in education – are "active agents in the production of a new pedagogic discourse, rather than merely the consumers of the professional knowledge produced by academics and educational researchers" (Edwards & Brunton, 1993, p. 156). Even then, there are problems of this form of practitioner research being 'colonised' by higher education academics (Elliott, 1991).

The fact is that the validity of much of the work of educational researchers continues to be questioned from without and within as being either irrelevant or lacking in rigour. Educational research has been publicly vilified by government and powerfully attacked as being "a private, esoteric activity, seen as irrelevant by most practitioners" (Hargreaves, 1996). It is, Hargreaves suggests, often researchers, not practitioners, who determined the agenda of educational research. Others have made similar criticisms in the past, though in a different context (Elliott, 1991; Day, 1991; Zeichner, 1995; Goodson, 1995); and it is true that much research by academics does not reach, does not influence, and is not valued by teachers in schools or by policy-makers.

The separation between the school teaching, policy-making and academic communities which exists partly because of history, partly because of function

and partly because of collusion *need not continue*. Worlds which emphasise the systematic gathering of knowledge, the questioning and challenge of ideology, formal examination of experience, professional criticism and seemingly endless discussion of possibilities rather than solutions, need not necessarily conflict with those dominated by unexamined ideology, action, concrete knowledge and busyness. Although it is interesting to observe that as researchers from universities and other agencies seek to work more closely with teachers and schools, policy formulation becomes more distant, there are examples of growing understandings of the possibilities for their complementarity. There has been in recent years an increased interest by those outside the academy in conducting systematic inquiry into educational issues. Whilst there is evidence of suppression, distortion, selective inattention and decontextualisation of the results by some for whom the love of politics excludes the application of integrity, this is unusual. Research needs to be more open, more amenable to those interest groups which seek to influence policy. Part of higher education's responsibility is to use our 'room to manoeuvre', to critique policy where it flies in the face of research, to be rigorous in our own research, whether separate from or in collaboration with teachers; and to communicate with rather than colonise the voices of practitioners. In order to do this we need to maintain and develop critical engagement with policy-makers, interest groups and practitioners.

In many countries, now, also, there is a growing market of providers of research from outside academia and it is possible to discern the beginnings of a trend away from reliance upon knowledge produced by the traditional research communities in universities. There are four important 'self-inflicted separations' which do not help our cause in the eyes of those who live outside the academy. These separations are represented by different academic identities, membership of certain tribes and occupation of certain territories.

1. Academic identities: separation by discipline

Many educational researchers hold fast to the original discipline in which they trained. Education is, it is claimed, after all, a field of study, not a discipline in its own right. Thus, it is populated with a range of professionals from what might be called different tribes, each with their own rules and traditions (Becher, 1989). Educational psychologists are psychologists who apply their discipline to educational problems. The same applies to sociologists, social psychologists, critical theorists and philosophers. Many, though not all, talk and write in the language of that tribe primarily for its other members. It is their tribe which provides the primary source of their identity, even within the broad field of educational research – and, other than at plenary sessions of annual conferences, the different tribes do not often talk to one another or read each other's messages.

2. The paradigm problem

Within and across these tribes the territories of educational researchers may be further divided by their preference or disposition towards the use of particular quantitative, qualitative, experimental or mixed methods paradigms which determine how they will research and analyse the worlds which they seek to understand and influence. There are endless debates among and between so called empiricists, interpretivists and constructivists for example, about ontology, epistemology, objectivity, subjectivity, narrative, phenomenology, case study, ethnography, life histories etc., generalisability, reliability, validity, authenticity, and so on, the fitness for purpose of particular ways of conducting research and the trustworthiness of results. Whilst much of this debate, once characterised as 'the paradigm wars' (Gage, 1989) has now been dissipated, tensions remain.

3. Disparate and disconnected agendas: the artisan researcher

Externally funded large scale research projects have always been difficult to obtain for most education researchers. It is not surprising, then, that a 'cottage industry' has developed with a disparate and disconnected range of largely individually constructed (artisan) small scale qualitative, experimental or survey research, resulting in papers in peer reviewed journals in which, it has been noted, "different vocabularies...are being used to tell different stories to ourselves and to others about research and about who we are as educational researchers" (Smith, 1997, p. 10). Perhaps there are better ways to work towards providing a coherent and persuasive research informed corpus of knowledge about schools, teachers and teaching? All research should not, of course, be tied to policy or practice dictated agendas. However, as public intellectuals researchers do have a collective moral responsibility to the educational community at large. For example, there need to be more regular meta analyses and communication to all stakeholders in this and in the broader educational community of what we have learned from the range of cottage industry research which we continue to conduct.

4. The problem of language

Many writers, including, most recently, Ruben Vanderlinde and Johan van Broak (2010), have referred to the difficulties of accessing new knowledge because the vocabulary used restricts entry to those closest to the research paradigm and certainly does not attract those outside the academy who, for the most part, do not read the journals in which such papers are published. Some would argue that the 'publish or perish' culture of higher education in many countries acts as a preventative to the re-working of the language of research. This takes time.

Publication in professional, less scholarly journals has, at least until recently, held few career rewards and may be subject to the charge of oversimplification by their peers.

PART 2: KNOWLEDGE PRODUCTION OF A DIFFERENT KIND: THE RESEARCHER AS CHANGE AGENT

Researchers across the world continue to acknowledge the divide that often characterises the worlds of teacher research and research in the academy and the limits of its influence. In his presidential address to the American Educational Research Association's Annual Conference in Chicago, 1991, Larry Cuban spoke of the usefulness of research as perceived by those outside the academic community and of his own dilemmas as one who had 'practised' in the schools system, and 'researched' as a scholar in higher education (Cuban, 1992). He called for more networking between educational communities of all kinds, and for the establishment of caring communities which would move beyond what is still for many outside academe the rhetoric of collaboration still resonates today. In highlighting the scholar-practitioner dilemma, like other others before and since then, he identified an alienation or at best the worldwide scepticism expressed by many teachers about research and researchers which is so unproductive. Ken Zeichner (1995) developed this theme:

> Despite the so-called revolution in teacher research around the world today where there is lot of talk about teachers as producers of knowledge…a view of educational research is still dominant among classroom teachers that sees research as an activity conducted by those outside the classroom for the benefit of those outside the classroom…and educational theory as what others with more status and prestige in the academy hierarchy have to say about them and their work… (Zeichner, 1995, p. 154).

The same might be said about the divide between policy – in many countries based upon political ideology – and research. Whilst there is not always agreement about priorities and practices, there is a need to assert the unique complementarity of purposes of policy makers, schools and departments of education in the education of teachers and in seeking the betterment of pupils. There is, however, a tension between the core 'service' purposes of departments of education to teachers and schools and their location within the academy. In a historical analysis, Ivor Goodson (1995) claimed that schools and departments of education "may have entered a 'devil's bargain'" (p. 141) when they became part of universities, with the result that, "their mission changed from being primarily concerned with matters central to the practice of schooling towards issues of status passage through the more conventional university scholarship" (p. 141). One consequence of this is the continuing separation of research and teaching functions both within universities

and between universities and sites of practice and the danger that the relationship between faculties of education and school practitioners will continue to constitute, "a model of how to talk past each other" (p. 141). This has led to powerful and persuasive critiques of educational researchers and research:

> We now have a virtual catalogue of reasons… for the apparent failure of research to influence teaching… (a) The research itself is not sufficiently persuasive or authoritative; the quality of educational studies has not been high enough to provide compelling, unambiguous or authoritative results to practitioners. (b) The research has not been relevant to practice. It has not been sufficiently practical, it has not addressed teachers' questions, nor has it acknowledged their constraints. (c) Ideas from research have not been accessible to teachers. Findings have not been expressed in ways that are comprehensible to teachers. (d) The education system itself is intractable and unable to change, or it is conversely inherently unstable, overly susceptible to fads, and consequently unable to engage in systematic change. (Kennedy, 1997, p. 4)

In the 1990s, Michael Eraut presented a compelling case for reconceptualising the relationship between higher education and the profession:

> The barriers to practice-centred knowledge creation and development…are most likely to be overcome if higher education is prepared to extend its role from that of creator and transmitter of generalisable knowledge to that of enhancing the knowledge creation capacities of individuals and professional communities. This would involve recognising that much knowledge creation takes place outside the higher education system, but is nevertheless limited by the absence of appropriate support structures and the prevailing action-orientation of practical contexts… (Eraut, 1994, p. 57)

He went on to suggest the need for closer relations and joint responsibilities for knowledge, creation, development and dissemination, suggesting collaborative research projects, problem-oriented seminars for groups of researchers and mid-career professionals and jointly planned programmes. At about the same time, in the USA, Wagner (1997) identified three forms of direct cooperation: i) data extraction in which the external researcher is the agent of inquiry; ii) clinical partnerships where the external research designer works with the teachers as active participants; and iii) co learning agreements in which both the researcher and participants are active agents and objects of jointly defined inquiries. These forms of cooperation might be regarded as representing different paradigms of knowledge production for change; and it is to a discussion of these to which I now turn.

In order to get closer to educational practitioners most researchers have engaged in a particular model of innovation identified 40 years ago by Ron Havelock as *Research Development and Diffusion* (R D and D). They choose and conduct the research and disseminate their findings, mainly through publication and conferences. Less frequently, they use a *Social Interaction Model* in which

they invite practitioners to try out the researchers' ideas or findings. In England in the 1970s, the work of Lawrence Stenhouse and colleagues from the University of East Anglia, Centre for Applied Research in Education, provide one notable example of the use of this model through the *Humanities Curriculum Project*. In this project, learning and teaching processes were investigated by teachers and researchers working cooperatively. It has been argued that this model of research and development in which the researcher seeks the cooptation of the client to his/her cause bridges the gap between theoretical research and educational practice and, thus, is potentially more influential on policy and practice; and there is some evidence for this (Burkhardt, 2006).

Three models of problem solving research in education

Gibbons and his colleagues (Gibbons et al., 1994) identified what they term Mode 2 production of knowledge in which knowledge is created in the context of use or application. It includes, "a wider, more temporary and heterogeneous set of practitioners, collaborating on a problem defined in a specific and localised context". The knowledge produced in this context is intended to be useful (Day, 1999, p. 73). It is, "always produced under an aspect of continuous negotiation and it will not be produced unless and until the interests of the various actors are included" (Gibbons et al., 1994, p. 4). It is still propositional knowledge, but problems of relevance, transfer and adoption found in mode 1 knowledge in which, "problems are set and solved in a context governed by the interests of a specific community" (Gibbons et al., 1994, p. 3) are minimised. However, even here, problems of wider dissemination outside the participant communities remain, as do potential problems of sustaining the innovation once the university team has left the scene.

Three models of research, in particular, in different ways provide examples of work by researchers who are concerned to influence policy and practice directly through working more closely with practitioners. Each of these models has been developed, either implicitly or explicitly, on the basis of a belief in the efficacy of a particular model of change.

i) Research into the practice setting: the experimental model

There are those who feel that educational research has done little to offer generalised solutions to educational problems (Olson, 2004). Yet I believe, with Slavin (2004) that, "research in education has an obligation to answer the 'what works' questions that educators, parents and policy makers ask" (p. 27). Like Hargreaves, Slavin uses a medical analogy to answer charges that each educational context is simply too unique, too complex to enable comparisons through, for example, experimental studies of replicable treatments:

> Yet randomised evaluations of complex medical treatments are routinely done, and they establish with a high degree of confidence the effectiveness of given treatments under given circumstances for given patients. There is no fundamental reason that research in education cannot do the same. (Slavin, 2004, p. 28)

It is reasonable to suggest that Robert Slavin has a special interest in promoting this since he is responsible for the design and leadership of a national intervention programme in the USA for helping children to read (SFA). Yet it is important to remember, as he reminds us, that, "the ultimate beneficiaries of education research must be children, not the researchers themselves" (p. 28). In further recognition of this, over the last decade in particular, there has been an increasing number of interdisciplinary and transdisciplinary research projects.

Two other models of research which 'fit' new modes of knowledge production and use may be particularly relevant in this century. Like the first, they imply the need for shifts in the attitudes and practices of many of us and the development of different skills, roles and qualities required to those used in more traditional research models. They pose challenges to the current identities and current practices of many of us. They are not intended to replace existing models but to provoke thinking about how, on the one hand, research carried out by academics might be prevented from becoming sidelined and, on the other, promote its influence on policy and practice. They are not intended to promote a move to research which is only utilitarian nor to deny the longer term value potential of research which is more speculative. They are not being promoted as models which should replace existing practices. However, they are being commended as models of practice which bring the so called researcher in university closer to the so called practitioner in school. They do, also, represent a change in the power relationships between the researcher and the researched and in the assumption that knowledge produced outside its context of use by those at a distance from it is intrinsically more credible than that produced through coalitions and collaborations between the different tribes within academia and between these and those tribes outside the hallowed walls of scholarship.

ii) Design research and development

So called design research is similar to a number of projects funded by the Schools Council in the UK in the 1960s. One well known example in the UK is *The Humanities Project*, led by Lawrence Stenhouse, founder of the Centre for Applied Research in Education (CARE) at the University of East Anglia. The experimental design adopted necessitated the active involvement of teachers in 32 schools from whom the central team of researchers would be able to learn. The schools were invited to, "test and develop hypotheses about teaching method and to test, and perhaps to add to, the materials offered by the central team" (Stenhouse, 1980, p. 142). Following this, further dissemination of the materials was mediated though, "a network of understanding people...[we would today call them champions]...

who would act as points of reference in their areas of the country" (ibid, p. 145). Jean Rudduck, who organised the dissemination, noted that, "innovation is difficult to accomplish, that there can be no effective curriculum development without teacher development..." (Rudduck, 1973, cited in Stenhouse, 1980, p. 145).

Essentially, then, design research is a model of research and development which is nested in a particular model of change agentry developed in 1969 by Havelock, then Director of the Centre for Research on Utilisation of Scientific Knowledge at the university of Michigan, out of a review of 4,000 studies of change in many fields. Figure 1 is adapted from the change agent model developed as a result of an analysis of an extensive range of change projects in the USA by Havelock and colleagues.

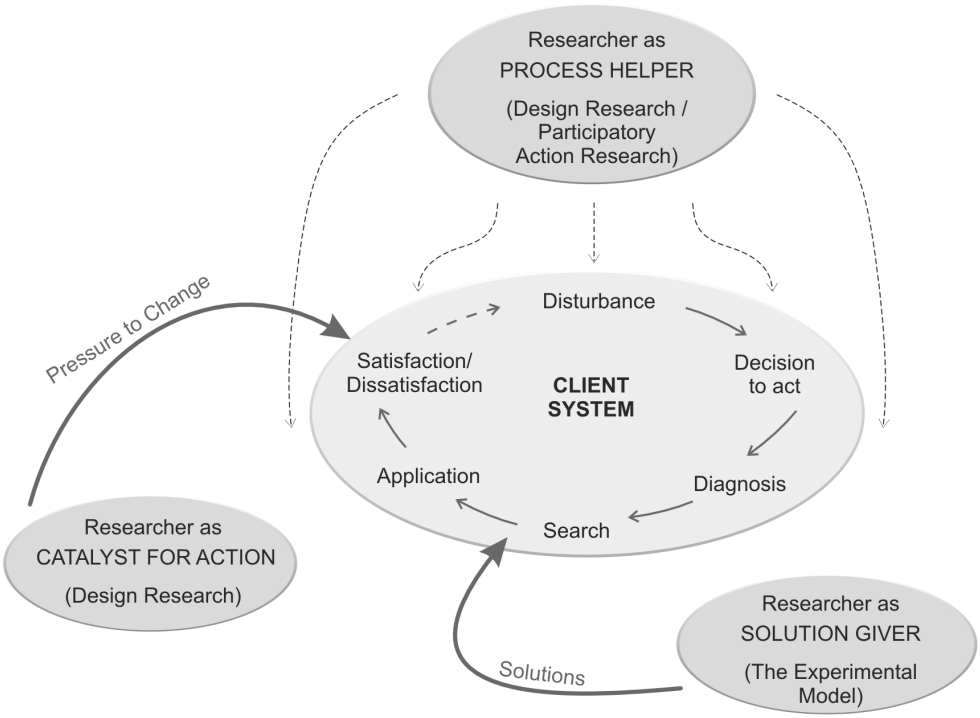

Figure 1. Three roles of researcher as change agent

In the design research tribe, the researcher-as-developer acts as an external change agent in the context of use by being a catalyst and process helper but not a solution giver. In this model the teacher is no longer the 'object' or 'subject', but now is the 'client'.

Figure 2 illustrates the process by which the researcher as developer coordinates his/her activities with those of the client.

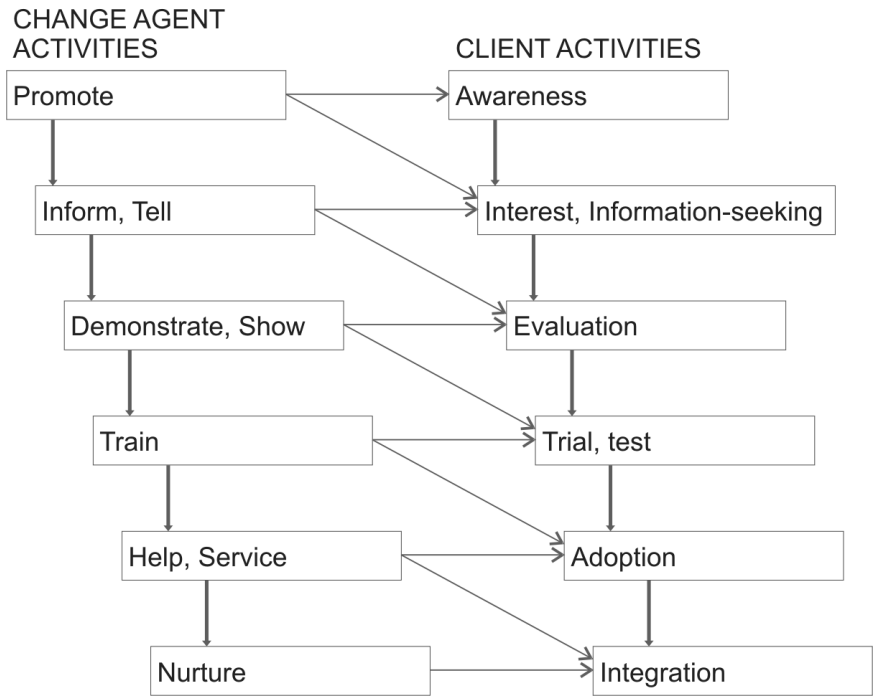

Figure 2. Co-ordinating researcher as change agent activities with the client's adoption activities

However, as Nicholls long ago observed:

> In this model an innovation is brought to the attention of a potential receiver. It is the sender who determines both the receiver and the receiver's needs. The receiver reacts to the innovation presented to him and it is the nature of his reaction which determines subsequent stages...It is a model that emphasises the importance of opinion leadership, personal contact and social relationships... (Nicholls, 1983, p. 16)

Thus, the role of researcher as expert, as in the medical model, is safeguarded and the tribe survives.

iii) Participatory action research

An alternative to this is the provenance largely of university researchers who conduct and help others to conduct action research for change and improvement. They are related to the experimental model and design research and development tribes because they also have change and improvement as their central purpose. However, whilst the first two are concerned to test out, if appropriate, adapt their ideas with potential clients, for this problem solving tribe user need is of paramount consideration:

> In this model the need of the receiver, whether implied, stated or assumed, is the focal point. The stages in this process of change can be viewed as a cycle, beginning with a felt need which is articulated as a problem. There follows a search for solutions... (Nicholls, 1983, p. 17)

In this model, the researcher from outside the practice setting is the 'underdog', and the subject for the research selected by the 'client(s)' on a voluntary basis. It is the client(s) who conduct research into their practice, with the assistance of the external researcher. The purpose of this research is almost always the examination of practice and the contexts and conditions under which this practice occurs in order that it might be improved. The model requires the researcher to possess and use a greater number of intra and interpersonal, social skill and to have a sustained presence. This 'problem-solving' model of innovation in which external agents are invited into the heart of practice settings (as critical friends, consultants or even intermediaries) in order to help facilitate the identification and resolution of problems identified by the user is an even more difficult undertaking. This is perhaps why, despite undoubted merits, in terms of influence on practice, participatory action researchers are so thin on the ground. It is resource intensive. The academic benefits are few but the intrinsic rewards are many.

A critique

It is easy to extol the virtues of these last two models in terms of the ways they bring research to teachers and invite teachers themselves to engage in systematic critical reflection upon and inquiry into practice. They are 'teacherly' rather than 'researcherly' in their focus. Both models have been promoted by government policy initiatives but for short periods of time. Both continue to be supported through models of school-university partnerships at the pre-service phase, through so-called professional learning communities and learning networks of schools at in-service levels (Veuglers & O'Hair, 2005) and through pre-service programmes which emphasise the important role of reflection in teaching. There are, also, international networks of researchers which promote 'self study' (Loughran, 1999) and action research (Somekh, 2006).

Those researchers who promote and participate in this work remain a relatively small minority. There are four reasons for this: i) they are resource hungry, yield low academic rewards despite their intrinsic worth and required sustained interactivity between the researcher-development and client; ii) to participate requires, for many, a radical reconstruction of professional identity and movement into tribes and territories which they are unfamiliar and with whom, at least initially, they will have little in common, in terms of language, cultural, traditions and beliefs. Such a move would be high risk; and 3. These models of researcher working with teacher as willing participant and co-constructor of knowledge imply the need for researchers to develop new skill sets required, for example, in order to engage in sustained relationships with teachers, to adopt multiple roles (for example, as

underdog, coach, problem poser, critical friend) and to be prepared to devote time and resources to a relatively small group with relatively little return on terms of publications or academic credibility; iv) There is some evidence, also, that the eventual but inevitable withdrawal of the researcher from the practice setting may result in the original research-based design changing or even being abandoned as new policy imperatives drive teachers to engage in new initiatives.

There are also 'messy' ethical issues in working close up with teachers and others outside the research community:

> There are those who choose the swampy lowlands. They deliberately involve themselves in messy but crucially important problems. When asked to describe their methods of enquiry, they speak of experience, trial and error, intuition and muddling through. Other professionals opt for the high ground. Hungry for technical rigor, devoted to an image of solid technical competence, or fearful of entering a world in which they feel they do not know what they are doing, they choose to confine themselves to a narrowly technical practice. (Schon, 1983, p. 43)

In 2006, one of the academic tribes began to discuss the ethics of what they call, 'co-generative dialogues' which are rooted in, "a philosophical approach to cosmopolitanism that acknowledges the differences between multiple participant, multiple fields, and varying ways of knowing and being" (Emdin & Lehner, 2006, p. 39). The authors were focussing upon the philosophical and practical measures needed to promote ethical practices when working with school students and teachers. In their discussion the authors:

1. highlight the need, as the authors point out, for, "school based researchers (to) have the moral directive to ensure that participants are afforded unconditional fairness and that they….pursue justice and beneficence for their participants by minimising potential harms and taking on any burdens associated with the study" (op. cit.);

2. point again to the problem of communication between tribes. This paper illustrates the use of specialised language which makes it virtually inaccessible to all but a few;

3. note that, for the teacher, engaging in what these authors term co-generative dialogues implies, as Argyris and Schon (1974) noted thirty years ago, moving away from the comfort zone of unexamined thinking and practice may cause them to experience feelings of loss, anxiety and vulnerability. It is generally assumed that engagement in research will benefit teachers. Yet, "the contributions it makes can only be worthwhile if the conduct of the research itself is irreproachable" (BERA, 2003).

PART 3: FOCUSSING ON THE WORK AND LIVES OF TEACHERS

In the next section, five areas of research knowledge about teachers work and lives of teachers are highlighted in order to establish the contemporary policy, psychological and social contexts in which they work and in which their professionalism is defined and contested. These are key areas of focus for researchers who wish to generate knowledge which will contribute to the quality of teaching and influence teachers and policy makers. The research is not intended to be representative but to illustrate the challenges which face them and thus researchers who wish to influence them. The pieces are from England, USA, Belgium and Australia and represent a conceptualisation of professionalism, drawing upon sociological theory (Sachs, 2003) small scale qualitative (Beijaard et al., 2004; Kelchtermans, 2010; Zembylas, 2010); and large scale longitudinal quantitative and mixed methods (Bryk & Schneider, 2002; Day et al., 2007). Each of these tells an important story from which policy makers, teacher educators, teachers and researchers can learn and which they may choose to address.

Story 1: The activist professional identity

"One of the hallmarks of being identified externally as a professional is to continue learning throughout a career, deepening knowledge, skill judgement, staying abreast of important developments in the field and experimenting with innovations that promise improvements in practice" (Sachs, 1997, p. 267).

Using illustrations from the Australian context in support of her ideologically principled position, Judyth Sachs, now Pro Vice Chancellor of McQuarrie University in Sydney, argues that teachers, to be at their most effective, need to be 'activists', rather than driven by policy to be passive recipients of policies which reduce their power to influence. She identifies inquiry as being at the heart of all the activities in developing an activist teacher:

> Teaching itself can be seen as a form of inquiry … professional teachers are viewed as researchers of their own practices, capable of producing worthwhile knowledge about teaching which can contribute to teachers' own and others' professional development. Developing the skills to help teachers inquire into their own and others' practice is fundamental to an activist oriented teacher education program. (Sachs, 2003, p. 73)

If we agree with this notion of what being and behaving as a professional means, then we have a clear indication of the possibilities for both building such values, dispositions and skills into teacher education programmes and, as researchers, to working with qualified teachers who already have a commitment to inquire into their practice in order both to understand it better and to improve it. However,

although some claim that to be a professional is to be an inquirer, we cannot, of course, assume that this will apply to all or even the majority.

Story 2: The vulnerable self: certain and uncertain identities

Over many years now, Geert Kelchtermans and his colleagues in Belgium have conducted small scale, fine grained qualitative studies into the ways in which teachers' selves are constructed. Others, of a similar persuasion, have conducted parallel studies in England (Troman & Woods, 2001) and elsewhere on teacher identity (Beijaard et al., 2004). They have concluded that teachers' selves are fragile and that 'vulnerability' is a feature of teaching. In the context of the new lives of teachers and, in particular, the involvement of teachers in research, we might conclude that an ongoing sense of vulnerability and uncertain identity would not help their confidence in conducting research into their practice; and that they may not be inclined to move towards research conducted by others unless it was able to be directly relevant to their practical needs of survival and growth.

Story 3: Commitment and resilience

According to large scale empirical research in England (Day et al., 2007) the relative stability or instability of teacher identity is associated with the support of school leadership and colleagues as well as teachers' internal (psychological) sense of vocation and strength of purpose. This was found to be especially important for teachers in particular phases of their professional lives and working in schools and with students from challenging socio-economic environments. Here, the exercise of individual, relational and organisational resilience (the capacity to bounce back in adverse circumstances) which sustained commitment was evident among effective teachers. University researchers who may wish to conduct research with as well as on or about teachers, may consider whether the focus of their work and the way they conduct their work needs to take account of the influence of these individual, organisational and social contexts upon teachers' capacities to learn and change in different phases of their professional lives.

Story 4: The trust effect

The fourth story which illustrates the territory which teachers in all countries inhabit and whose borders need to be negotiated by researchers is the school itself as a unit of investigation. Trust is important to the way university researchers form and sustain their relationships with teachers in developing research. Bryk and Schneider (2002) carried out research with 100 elementary schools in Chicago. They found that over a three year consecutive period, student results in English and Maths in those schools in which there was 'relational trust' improved, whereas the reverse was the case for pupils in those schools in which relational trust did not

exist. Whilst this claim may seem to be large, it is fully justified by the robust analysis of the qualitative and quantitative data. The question for researchers wishing to work with teachers, then, is to what extent relational 'trust' and the associated high levels of sustained interactivity on which it is built are necessary features, not only of successful schools but also of successful research relationships.

Story 5: Emotional wellbeing

Finally, there is the issue of teachers' emotional wellbeing. Research has constantly revealed that, although schools and classrooms are emotional, often turbulent places (Nias, 1996; Fineman, 1993), emotions and their role in the quality of teaching and learning are rarely the subject of explicit discussion (Hargreaves, 1998). This applies even more to the world of higher education in which the rhetoric if not the reality of rationality prevails as the dominant form of scholarly discourse. Yet, there is a growing wave of psychological, social and neuro-scientific research which reveals the important part played by emotional intelligence (Goleman, 1996), emotional understanding (Denzin, 1984), emotional literacy (Harris, 2007) and emotions (Damasio, 1994) in decision making. Indeed, we now have a theory of positive emotions (Fredrickson, 2004) which suggests that those who experience these, over time are able to build and sustain resilience. Some even suggest that positive emotions are associated with wellbeing (Layard & Dunn, 2009; Seligman, 2002). Yet, this remains a relatively unexplored field by educational researchers.

Conclusions

Ball and Forzani (2007) argue for a view of educational research which is conducted, "at the heart of educational practice and policy" (p. 529), not in opposition to other kinds of scholarship which examine and inform from a distance, but as complementary to it. They focus upon what they call the 'instructional dynamic'. Like Slavin and Hargreaves before him, they draw an analogy between this kind of research and the close connection between medical research and treatment:

> When patients do not understand the new practices or are sceptical of their effectiveness, effective health care workers try to find ways to help their patients learn more and appreciate the validity of the treatment. Educational reformers who seek to implement a new curriculum in a school face the similar task of making sure that the teachers who will use the same materials understand the program's goals and know how to make choices about when and how to use the materials provided. (p. 530)

In taking this stance, Ball and Forzani are arguing for educational research as a discipline rather than a field of study, so that, "phenomena outside educational settings can be studied with a special educational perspective complementary to the theoretical perspectives offered by other disciplines" (p. 530).

Thus they are not arguing for teacher educators as 'intermediaries' between research and practice, but rather that they should have special analytical skills which enable them to bridge the theory practice gap and work across borders with the street and mid level bureaucrats and teachers who mediate the implementation of research which speaks to policy and practice.

The same authors claim that:

> At the center of every school of education must be scholars with the expertise and commitment necessary to study educational transactions… [and that] …if they do not work actively to disseminate that knowledge among policy makers and members of the public, then educational problem solving will be left to researchers and professionals without the requisite expertise…Educational researchers must also arm themselves with the special analytical skills that will allow them to usefully bridge the alleged divide between theory and practice. It is along this divide that educational researchers have special expertise. (ibid, p. 537)

Essentially, Ball and Forzani are identifying 'the elephant in the room', something so obvious that we often overlook its huge importance. In this case, there are two elephants: researcher independence and moral purpose. Whilst all of us would support Ivor Goodson's articulation of the researcher as independent, "a public intellectual, not a servant of the state" (Goodson, 1999), I would argue that alongside independence is moral purpose, a sense of deep responsibility of contributing to the 'betterment' of society. Some time ago, Shulman wrote of the 'six commonplaces of every profession' as:

> One, the obligations of service to society, as in a calling. Two, understanding of a scholarly or theoretical kind. Third, a domain of skilled practice or performance. Fourth, the exercise of judgment under conditions of unavoidable uncertainty. Fifth, the need for learning from experience, as theory and practice interact in the presence of chance and unpredictability. And last, a professional community to monitor quality and to aggregate knowledge. (Shulman, 1998, p. 9)

The same might be applied to all of us in the room and beyond who work in education. Discussions of research as a means of understanding, influence and change in education, whether our work is on, with or for teachers take on a particularly important; and for some a new, meaning in this context of moral purposes. Questions of whether research should or should not be relevant to policy and practice are secondary to these discussions. Seligman (2002) identified three categories of teachers – those for which teaching is a job; those for whom teaching is a career; and those for whom teaching is a vocation. The same three categories may be applied to researchers:

1. *Research as a Job*

Here, researchers are committed to undertaking research only because they must, in order to keep their jobs. They are neither interested nor uninterested in contributing to the greater good of policy or practice.

2. Research as a Career

Here, researchers wish to progress in their tribes to become senior members of their departments or universities, and are willing to work hard to undertake research which will assist them in doing so. They seek opportunities to work with policy makers, colleagues, and practitioners for collaboration, dissemination, co-construction of research agendas only in so far as it will benefit their careers. They may become less interested in contributing to the greater good of policy and practice once they reach the top of their career path and can progress no further.

3. *Research as a Vocation*

Here, researchers wish to serve, both through creating new knowledge on, with and for teachers. In whatever paradigm they work, they plan to build bridges with policy makers and practitioners for the purposes of informing and influencing for change. They may not do these simultaneously. They wish for their research to be both 'educative' and 'formative' (Hammersley, 2003). They seek opportunities to work with policy makers, colleagues and practitioners for collaboration, dissemination, co-construction and co-implementation of researcher agendas regardless of career benefits. They see dissemination of research as circular, emphasising, "a two way flow of information between researchers and practitioners and encourage(s) practitioners to adapt and negotiate research findings within the contexts of their use" (Vanderlinde & van Broak, 2010, p. 303).

As researchers, we do need to acknowledge what research tells us about ourselves, our endeavours and our influence (or lack of it). There are sceptics among teachers and policy makers – and even researchers of different ontological and epistemological dispositions – about the intrinsic value of research and about its relevance, language and applicability. However, there are examples of research which does lead to greater educational understandings, which influences policy and practice, which, ultimately, makes a difference to the contexts and quality of teachers' and childrens' experiences in schools and classrooms.

We know that, "the gap between educational research and practice is a more complex and differentiated phenomenon than commonly assumed in the international literature" (Vanderlinde & van Braakk, 2010, pp. 311–2).

No single model of research will necessarily be best fitted to bridge the gap. However, whether research is constructed and conducted primarily for the purpose of furthering understanding or for more direct influence on policy makers and practitioners, whether it is on, about or for education, the obligation of all researchers is to reflect upon their broader moral purposes and measure the worth of their work against their judgement of the extent to which they are able to realise this as they continue to develop their work.

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Contact information
Christopher Day
School of Education
Faculty of Social Sciences
Jubilee Campus
Nottingham
NG8 1BB
United Kingdom
christopher.day@nottingham.ac.uk

MAKING TEACHER EDUCATION RELEVANT FOR PRACTICE: THE PEDAGOGY OF REALISTIC TEACHER EDUCATION

FRED A. J. KORTHAGEN

VU University, Amsterdam

Abstract: *The gap between theory and practice in teacher education has led to much criticism regarding the effectiveness of teacher education. In this article, the causes of this gap are discussed and related to a framework for teacher behaviour and teacher learning. Using this framework, the so-called 'realistic approach' to teacher education has been developed, which marks a new direction in the pedagogy of teacher education. This approach, developed at Utrecht University in the Netherlands, is described in this article, and its basic principles are discussed. Several evaluative studies into the realistic approach show its positive outcomes. Important conclusions are presented for (1) programme design, based on (2) a view of the intended process of student teacher learning, (3) the pedagogical interventions and arrangements used, and (4) the professional development of teacher educators.*

Key words: *gap between practice and theory, teacher education, realistic approach, reflection, teacher learning, empirical support for the realistic approach*

Introduction

At many places in the world, including the Czech Republic, there is a growing emphasis on bridging theory and practice in teacher education. In many countries, school-based teacher education has been introduced in an attempt to overcome the criticism that teacher education is not sufficiently relevant to practices in schools (Ashton, 1996). However, without careful consideration of the pedagogy used in teacher education, there is a risk that this move towards schools is counterproductive, as will be explained below.

In this context, it is a positive development that the book entitled *Linking practice and theory, the pedagogy of realistic teacher education* (Korthagen et al., 2001) has

been translated into several languages and has recently been published in Czech (Korthagen et al., 2011).

In the present article, the main issues that are elaborated in this book will be discussed. First, we will focus on the gap between theory and practice, which has made teacher education a difficult enterprise. Next, the causes of this gap will be analysed.

Central to the article is the presentation of a three-level model of teacher behaviour and teacher learning. This model clarifies that professional learning is a bottom-up process taking place in the individual student teacher. Based on the model, the so-called 'realistic approach' to teacher education will be described. It aims at supporting the bottom-up process, starting from experiences and leading to fruitful knowledge about teaching which really influences teachers' practices. After presenting the central principles of realistic teacher education, the approach will be illustrated by looking at one typical programme element, the so-called *one-to-one*.

Evidence of the effectiveness of the realistic approach to teacher education will be presented through a brief description of a number of evaluative studies, which show that the approach really makes a difference. Finally, important conclusions will be presented regarding (1) programme design, based on (2) a view of the intended process of student teacher learning, (3) the pedagogical interventions and arrangements used, and (4) the professional development of teacher educators. This will also lead to some critical remarks about current professional habits in teacher education.

The Gap Between Theory and Practice

The gap between theory and practice has been a perennial issue. As early as the beginning of the 20st century, Dewey (1904) noted this gap and discussed possible approaches by which it might be bridged (see also Shulman, 1998). Nevertheless, in the course of the more than 100 years since, the relationship between theory and practice has remained the central problem of teacher education world-wide (Lanier & Little, 1986).

What has become clear is that the idea of simply transmitting important pedagogical knowledge to teachers, hoping that they will apply this knowledge in their practices, does not really work. Wideen, Mayer-Smith, and Moon (1998, p. 167) describe this traditional view as follows:

> The implicit theory underlying traditional teacher education was based on a training model in which the university provides the theory, methods and skills; the schools provide the setting in which that knowledge is practiced; and the beginning teacher provides the individual effort to apply such knowledge. In this model, propositional knowledge has formed the basis of university input.

Many other researchers, too, have critiqued this model. Clandinin (1995) calls it "the sacred theory-practice story", Schön (1983, p. 21) speaks about "the technical-

rationality model", and Carlson (1999) names it the "theory-to-practice approach", and discusses its limitations. As Barone et al. (1996) argue, this approach often has led to a collection of isolated courses in which theory is presented with hardly any connection to practice, based on the following assumptions:

1. Theories help teachers to perform better in their profession;
2. These theories must be based on scientific research;
3. Teacher educators should make a choice concerning the theories to be included in teacher education programmes.

The traditional model has been dominant for many decades (Sprinthall, Reiman, & Thies-Sprinthall, 1996; Imig & Switzer, 1996, p. 223), although many studies have shown its failure in strongly influencing the practices of graduates of teacher education programmes. A thorough overview of these studies is presented by Wideen, Mayer-Smith, and Moon (1998), who conclude that the impact of traditional teacher education on their students' practices seems rather limited, a conclusion also drawn by the Research Panel on Teacher Education of the *American Educational Research Association* (Cochran-Smith & Zeichner, 2005). Several of the cited studies show that beginning teachers struggle for control, and experience feelings of frustration, anger, and bewilderment. The process they go through is more one of survival than of learning from experience.

Causes of the Gap

The causes of these problems are well-documented in the literature.

A first, oft-mentioned cause of the theory-practice divide has to do with the learning process within teacher education itself, even before the stage in which theory can be applied to practice. Student teachers' prior knowledge plays a powerful role in their learning during a teacher education programme (e.g., Wubbels, 1992), and their preconceptions show a remarkable resistance to change (Joram & Gabriele, 1998). In the literature, this has been explained by the many years of experiences that student teachers have had as pupils within the educational system (Lortie, 1975; Brouwer & Korthagen, 2005).

A second, more fundamental cause has been named the feed-forward problem: "resistance from the student teacher at the time of exposure to given learnings and, later, protestations that the same learning had not been provided in stronger doses" (Katz et al., 1981, p. 21; see also Bullough, Knowles, & Crow, 1991, p. 79). This problem can also be stated as follows: in order to learn anything during teacher education, student teachers must have personal concerns about teaching or they must have encountered concrete problems (Korthagen et al., 2001). Otherwise, they do not perceive the usefulness of the theory.

A third cause has to do with the nature of teaching. Hoban (2005, p. 9) states that "what a teacher does in a classroom is influenced by the interaction of many elements such as the curriculum, the context, and how students respond to

instruction at one particular time". Hoban continues by saying that this view of the nature of teaching necessitates 'holistic judgement' (cf. Day, 1999) about what, when and how to teach in relation to a particular class, and this is something for which it is hard to prepare teachers. Moreover, practice is generally ambiguous and value-laden (Schön, 1983), whereas teachers often have little time to think and thus need prompt and concrete answers to situations (Eraut, 1995). What they need is rather different from the more abstract, systematised and general expert-knowledge that teacher educators often present to student teachers (Tom, 1997).

Finally, it is not only knowledge that is involved. Many studies on teacher development show that teaching is a profession in which feelings and emotions play an essential role (Day, 2004; Hargreaves, 1998), but "the more unpredictable passionate aspects of learning, teaching and leading (…) are usually left out of the change picture" (Hargreaves, 1998, p. 558). The problem of promoting fundamental professional change is first of all a problem of dealing with the natural emotional reactions of human beings to the threat of losing certainty, predictability or stability. This affective dimension is too much neglected in the technical-rationality approach, which seems to be another cause of the gap between theory and practice.

Although these causes of the gap between theory and practice are well-known, it is remarkable that many teacher education programmes still reflect the traditional 'application-of-theory model' described above. In his work as a trainer of teacher educators in various countries, the author of this article has had the opportunity to analyse the 'everyday pedagogy' of teacher education. It has clarified that basically the traditional view of teacher education has not changed and even that many "new" approaches often take the form of sophisticated procedures to try and interest student teachers in a particular theory, for example by using video cases or having students create portfolios. This means that the fundamental idea that there exists theory that should be transferred to student teachers still represents a very dominant line of thought. The fundamental conception inherent to this line of thought is that there is a gap to be bridged. One often forgets that it was the *a priori* choice of the educator that created this gap in the first place. In line with this, Robinson (1998, p. 17) states: "[N]arrowing the research-practice gap is not just a matter of disseminating research more effectively or of using more powerful influence strategies."

The Essence of Teacher Behaviour and Teacher Learning

In order to further develop our understanding of the problems, but also to better realise the opportunities we have in teacher education, there is a need for a theory on teacher behaviour and teacher learning. For this purpose, Korthagen and Lagerwerf (2001) developed a model which contributes to a deeper insight into the phenomena described above (see Figure 1).

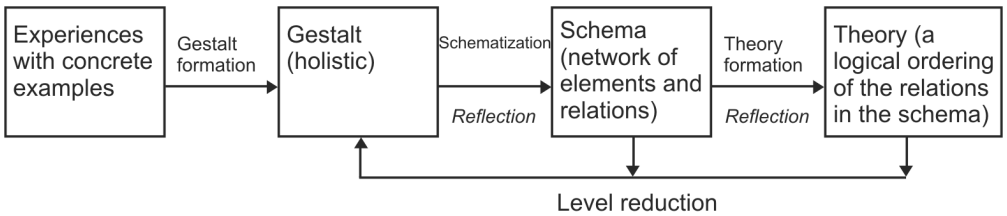

Figure 1. The three-level model and the accompanying learning processes.

The model distinguishes between three main levels, the first of which is the *gestalt level*, which is rooted in practical experiences, and is often unconscious. Through reflection on the gestalt level, teachers may develop *a personal practical theory*, and, at the next level, a logical and adequate ordering in such a theory concurring with research outcomes, called *formal theory*. The three levels will be explained below.

The gestalt level

Based on a general psychological perspective, Epstein (1990) argues that the manner in which humans deal with most situations is mediated by the so-called *experiential body-mind system*, which processes information in a rapid manner. According to Epstein, the experiential system functions through emotions and images in a holistic and often subconscious manner, which means that the world is experienced in the form of wholes, in which cognitive and emotional aspects are interconnected (Epstein, 1990, p. 168; Epstein, 1998; cf. Bargh, 1990). Epstein's analysis is highly relevant to the teaching domain, as many studies on teacher routines (e.g., Halkes & Olson, 1984) emphasise that automatic or mechanical behaviour is characteristic of much teaching. Dolk (1997) states that most teacher behaviour is *immediate behaviour*, i.e. behaviour occurring without reflection. A similar position is taken by Eraut (1995).

This view implies that much of a teacher's behaviour is grounded in unconsciously and instantaneously triggered images, feelings, notions, values, needs or behavioural inclinations, and often in combinations of these aspects. Precisely because they often remain unconscious, they are intertwined (Lazarus, 1991) and thus form a whole that Korthagen et al. (2001) call *a gestalt,* based on Korb, Gorrell, and Van de Riet (1989). This implies a broadening of the gestalt concept, which was originally used just to describe the organisation of the visual field (Köhler, 1947). A gestalt is considered to be a dynamic and constantly changing entity encompassing the whole of a teacher's perception of the here-and-now situation, i.e. sensory perceptions of the environment as well as images, thoughts, feelings, needs, values, and behavioural tendencies triggered by the situation. This implies an holistic view, which concurs with the observation by brain researcher Damasio (1994, p. 83–84) that behaviour is grounded in many parallel bodily systems, and that emotion is strongly linked to the primary decision-making process (see

Immordino-Yang & Damasio, 2007 for a more detailed elaboration and a model of the complex relations between cognition and emotion).

The notion of a gestalt can be illustrated with an example from a study by Hoekstra et al. (2007) into informal learning among 32 teachers. The aim of the research study was to find relationships between the teachers' behaviours and the accompanying internal processes, and their influence on their professional learning in the workplace. The 32 experienced teachers were monitored over a period of 14 months with the aid of questionnaires, digital reports on their learning experiences, and interviews. In an in-depth component of the study, four of the 32 teachers were observed more intensively, using video recordings of their teaching and post-lesson interviews. One of the teachers, Albert, was observed while teaching on the topic of potential energy. It seemed that the pupils were lost while he kept on talking. In the interview after the lesson, Albert said:

> I later noticed they did not have a clear idea of what that [potential energy] was. (…) And looking back, I am not quite satisfied with how I've done it. Some concepts were not clear enough to the pupils. To understand the whole story, you actually have to know more about the phenomenon 'potential energy'. I ignored that concept, because it had been talked about in the previous assignment. But in that very assignment, the question of 'what exactly is potential energy?' had not been dealt with either.

What we see here is quite a common didactical problem. The teacher went on, although, from the perspective of his objectives, something seemed to be going wrong. A sequence of actions unfolds, probably triggered by the (conscious or unconscious) need to get the concept of potential energy across, based on a (perhaps not completely conscious) notion that the concept had already been dealt with. After the lesson, Albert becomes aware of the fact that his teaching strategy was not very effective, and he also reflects on why he did what he did. This may have been triggered by the fact that he was being interviewed about the situation. In many cases, however, teachers are not really aware of the effects of their behaviour and its underlying causes, as several authors (e.g., Clark & Yinger, 1979) have found.

The level of personal practical knowledge

As noted, many of the sources of a teacher's behaviour may remain unconscious to the teacher. However, through reflection, he or she may become aware of at least some of these sources. In the example, Albert became aware of an underlying cause of his behaviour, namely his (wrong) idea about the previous assignment, and the effects of this idea on what happened in the situation. During such a reflection process, in this case a didactical reflection, notions or concepts become interrelated. Hence, when a teacher reflects, often a previously unconscious gestalt develops into a conscious network of concepts, characteristics, principles, and

so on, which is helpful in describing practice. This cognitive network is called a *personal practical theory*. It is very much coloured by the desire to know how to *act* in particular situations, as opposed to having an abstract *understanding* of them.

The level of formal theory

If someone aims at developing a more *theoretical understanding* of a range of similar situations (as researchers often want and do), this may lead to the next level. This is the level at which a logical ordering is constructed in the personal practical theory formed before: the relationships within one's cognitive network are studied or several notions are connected into one coherent theory. One can only speak about reaching the third level if the resulting cognitive network concurs with formal scientific theory.

Interestingly, in the study by Hoekstra et al. (2007) mentioned above, no examples were found in which teachers demonstrated this level. Perhaps this is understandable. The third level is aimed at deep and generalised understanding of a variety of similar situations, whereas practitioners often focus on directions for taking action in a particular situation, and as a consequence, often do not reach the level of formal theory. This was also the conclusion reached by an empirical study by Korthagen and Lagerwerf (2001).

Level reduction

If a teacher does reach the theory level, knowledge at this level first has to become part of a personal practical theory if it is to start influencing behaviour; or, even better, it has to be integrated into a gestalt in order to become part of the teacher's routine. This is called level reduction (see Figure 1). Often, however, level reduction does not take place at all, for it requires much practising in authentic contexts, and even then friction may remain between pre-existing gestalts and the new theory. This is an important cause of the gap between theory and practice.

Originally, the three-level model was developed by Van Hiele (1973, 1986) within the context of mathematics education, as an adaptation of Piaget's theory. It concurs with Epstein´s (1990, 1998) distinction between an experiential and a rational system within the human organism, which reflects the distinction between the gestalt level on the one hand and two levels on the other. Other authors whose work shows similar lines of thinking are Johnson (1987) and Lakoff and Johnson (1999). They talk about the *embodied mind*, and emphasise the importance of *image schematic structures*, which are of a non-propositional and figurative nature, and mostly unconscious:

> These are gestalt structures, consisting of parts standing in relations and organized into unified wholes, by means of which our experience manifests discernible order. When we seek to comprehend this order and to reason about it, such bodily based schemata play a central role. For although a given image

> schema may emerge first as a structure of bodily interactions, it can be figuratively developed and extended as a structure around which meaning is organized at more abstract levels of cognition." (Johnson, 1987, p. xix-xx).

The idea that a great deal of people's behaviour is grounded in unconscious gestalts, concurs with findings from neuroscience showing that much of our decision-making is rooted in subconscious processes in our brain, and that decisions are made unconsciously, even before our conscious mind thinks we make such decisions deliberately (William, 2006). Brain researcher Gazzaniga (1999, p. 73) points towards the same phenomenon: "Major events associated with mental processing go on, measurably so, in our brain before we are aware of them."

More empirical data supporting the three-level model are described in Korthagen and Kessels (1999), Korthagen and Lagerwerf (2001, pp. 185–190), and Korthagen (2010).

Realistic Teacher Education

The *realistic approach* is an approach to teacher education that takes into account the above analysis of the gap between theory and practice as well as the above framework regarding teacher learning and teacher behaviour. It was originally developed at Utrecht University in the Netherlands. Its five guiding principles are formulated by Korthagen et al. (2001) as follows:

1. The approach starts from concrete practical problems and the concerns of student teachers in real contexts.
2. It aims at the promotion of systematic reflection by student teachers on their own and their pupils' wanting, feeling, thinking and acting, on the role of context, and on the relationships between those aspects.
3. It builds on the personal interaction between the teacher educator and the student teachers and on the interaction amongst the student teachers themselves.
4. It takes the three-level model of professional learning into account, as well as the consequences of the three-level model for the kind of theory that is offered.
5. A realistic programme has a strongly integrated character. Two types of integration are involved: integration of theory and practice and the integration of several academic disciplines.

Reflection

From the above it is clear that reflection plays an important role in the realistic approach, as it helps to promote level transitions. The approach to reflection used in realistic teacher education is based on an alternation between action and

reflection. Korthagen (1985) distinguishes five phases in this process: (1) action, (2) looking back on the action, (3) awareness of essential aspects, (4) creating alternative methods of action, and (5) trial (see Figure 2). This five-phase model is called the *ALACT model* (named after the first letters of the five phases). The fifth phase is again the first phase of the next cycle, which means that we are dealing with a spiral model: the realistic approach aims at an on ongoing process of professional development.

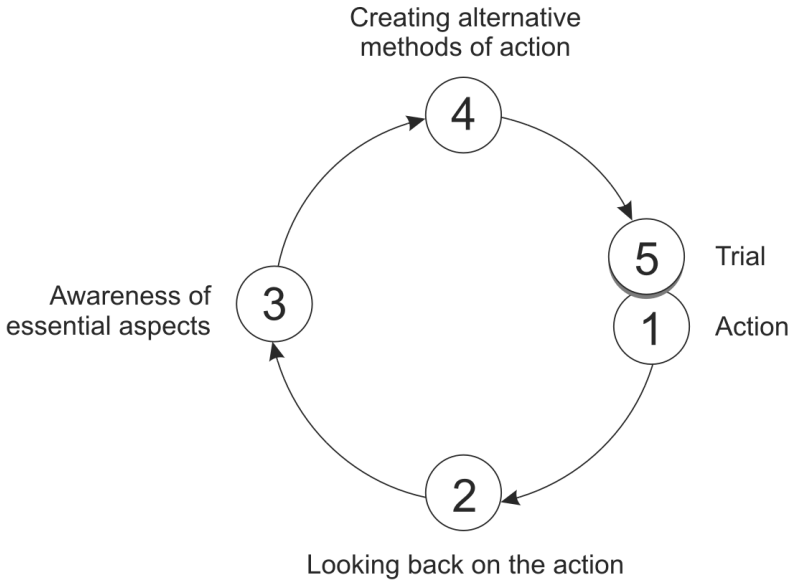

Figure 2. The ALACT model describing the reflection process

Here is an example of a student teacher, Judith, going through the phases of the ALACT model under the supervision of a teacher educator:

> Judith is irritated by a pupil named Jim. She has the feeling that Jim always tries to avoid having to do any work. Today she noticed this again. In the preceding lesson the children received an assignment for three lessons to be worked on in pairs; they would hand in a written report at the end. Today, during the second lesson, Judith had expected everyone to work hard on the assignment and to use this second lesson as an opportunity to ask for her help. Jim, however, appeared to be busy with something completely different. In the lesson she reacted to this by saying: "Oh, so again you are not doing what you are supposed to.…I think the two of you will again end up with an unsatisfactory result!" (Phase 1: action)
>
> During the supervision, Judith becomes more aware of her irritation and how this influenced the way she acted. When the supervisor asks her how her reaction might have affected Jim, she realises that her irritation may, in turn, have caused irritation in Jim, probably causing him to be even more demotivated in his work on the assignment. (Phase 2: looking back)

> By this analysis she becomes aware of the escalating negativity which is evolving between her and Jim and she starts to realise how this leads to a dead end (phase 3: awareness of essential aspects). However, she does not see a way out of the escalation. Her supervisor shows understanding of Judith's struggle. She also brings in some theoretical notions about escalating processes in the relationship between teachers and pupils, such as the often occurring pattern of 'more of the same' (for the underlying formal theory, see Watzlawick, Weakland, & Fisch, 1974) and the guidelines for how to de-escalate by changing this pattern by deliberately giving a positive reaction. This is the start of phase 4: creating alternative methods of action. She compares these guidelines with her impulse to be even stricter and put more constraints on Jim. Finally, she decides to try out (phase 5) a more positive, empathetic approach, which starts by asking Jim about his plans. This is first done in the supervision session: the supervisor asks Judith to practise such reactions and includes a mini-training exercise in the giving of empathetic reactions. If the results of this new approach are reflected on after the try-out in a real situation with Jim, phase 5 becomes the first phase of the next cycle of the ALACT model, thus creating a spiral of professional development.

As we see in the example, during phase 3 of the ALACT model, when the student teacher starts to become aware of the essence of the situation she is reflecting on, the teacher educator can bring in theoretical elements, but these need to be tailored to the specific needs of the student teacher and the situation at hand. As explained above, this changes the nature of relevant theory brought in during a supervisory session: it seldom takes the form of formal theory.

The idea of learning by reflection is in harmony with the three-level model introduced above and can also be applied to other components of teacher education, such as group seminars. The teacher educator may, for example, create an experience in class which is the basis for an ALACT process in the whole group. An example of this is the idea of organising ten-minute lessons given by student teachers to their peers.

The promotion of reflection is not only important for the supporting of level transitions. When teachers learn how to reflect during their preparation for the profession, by systematic use of the ALACT model, for example, they develop a *growth competence*, i.e. the ability to direct their own professional development during the rest of their careers. If they experience how this can be done in collaboration with their peers, this prepares them for peer-supported learning during the rest of their careers, which creates a counterbalance to the often somewhat individualistic culture of teaching that exists in many schools.

An Example: the One-To-One

This Section describes an example of a programme element, namely the one-to-one, which has been developed in response to the problem that teaching a whole class on a regular basis appears to be a complex experience for novice teachers, and that this experience tends to foster gestalts and concerns related to

'survival'. This is why the first teaching-practice period has been simplified. Each prospective teacher gives a one-hour lesson to one high-school pupil once a week for eight weeks. Neither the university supervisor nor the mentor teacher is present during actual one-to-one lessons, but there are supervisory sessions and seminar meetings during the one-to-one period. The lessons are recorded on audio or video, and are subsequently the object of detailed reflection by the student teacher. This reflection is structured by means of the ALACT model.

During the one-to-one period, the student teachers form pairs. Of the eight one-to-one lessons, four are discussed by the student teachers within these pairs, and four lessons are discussed by the pair and the teacher educator. The teacher educator can suggest small theory-based ideas that fit the processes the student teachers are going through. These ideas can be derived from a variety of theoretical backgrounds. After both types of discussion, each student teacher writes a report that brings together the most important conclusions.

A general finding is that by use of audio and video recordings the student teachers rapidly discover that they failed to listen to what the pupil was saying, or started an explanation before the problem was even clear to the pupil. As one of our student teachers put it: "The one-to-one caused a shift in my thinking about teaching, from a teacher perspective to a pupil perspective." This quote is representative of the learning processes of most student teachers in the one-to-one. However, there also appear to be considerable differences between student teachers in terms of what is learnt during such a one-to-one arrangement. To give some examples, one student teacher focused on a lack of self-confidence in the pupil she was working with, and started a search for ways of improving the child's self-image, while another student teacher was confronted with her own tendency to explain things at a fairly abstract level. The latter developed the wish to include more concrete examples.

In sum, the one-to-one gives student teachers many opportunities to learn on the basis of their own experiences and the concerns they develop through these experiences. In this way the student teachers reflect on, and sometimes question, their initial gestalts and develop a personal practical theory that is meaningful to them. In this respect, the one-to-one is a good illustration of realistic teacher education.

Once student teachers have developed their own personal practical theory, it becomes important to offer them theoretical knowledge from professional articles and books in order to deepen, challenge and adapt their personal theories and help them reach the level of formal theory. For this reason, the final part of the Utrecht programme has curriculum elements in which experts in areas such as learning psychology or classroom interaction offer theoretical knowledge to students. It is important at this stage, too, that theory is built onto the experiences and insights the students themselves have already developed.

Empirical Support for the Realistic Approach

As Zeichner (1999) notes, what really happens in teacher education programmes often remains obscure. Processes and outcomes are seldom studied systematically. In contrast to this general picture, the realistic approach is well researched. Of interest are the following evaluative studies, described in more detail in Korthagen et al. (2001) and in the Czech translation of this book (Korthagen et al., 2011).

1. *A national evaluation study* of all Dutch secondary-teacher education programmes carried out by an external research office, showed that 71% of a sample of graduates of the Utrecht programme (n=81) rated their professional preparation as good or very good (Luijten, Marinus, & Bal, 1995; Samson & Luijten, 1996). In the total sample of graduates from all Dutch secondary-teacher education programmes (n=5135) this percentage was only 41%, which shows a statistically significant difference ($p<.001$).
2. *An evaluative overall study among all graduates of the Utrecht University programme* carried out at the end of the 1990s, showed that 86% of the respondents considered their preparation programme as relevant or highly relevant to their present work as a teacher (Koetsier, Wubbels, & Korthagen, 1997).
3. *An in-depth study* by Hermans, Créton, and Korthagen (1993) in a cohort group of twelve student teachers, showed that all experienced a seamless connection between theory and practice. In the context of the above-cited research on the problematic relationship between theory and practice in teacher education, this is a remarkable result. Some quotes from student teachers' evaluations are: "To my mind, the integration theory/practice was perfect"; "Come to think of it, I have seen and/or used all of the theory in practice"; "The things dealt with in the course are always apparent in school practice."
   However, one may wonder here what these student teachers mean by 'theory'. Considering the processes and contents of the programme, probably they are not referring to purely formal theory but to a mixture of personal practical theory and more formal theory. Perhaps this is the essence of what a real integration of theory and practice might mean.
4. *An extensive longitudinal study* by Brouwer and Korthagen (2005) focused on the relationship between the programme design and outcomes of the realistic approach. At various moments during the programme, and during the first two years in which the graduates worked as teachers, quantitative and qualitative data were collected among 357 student teachers, 31 teacher educators and 128 mentor teachers. Positive influences on these teachers' practices appeared to depend primarily on the degree to which theoretical elements in their preparation programme were perceived by the student teachers as being functional for practice during their student teaching, and on the degree of cyclical alternation between school-based and

university-based periods in the programme. In addition, a gradual increase in the complexity of activities and demands placed on the student teachers appeared to be a crucial factor in the integrating of theory and practice.

5. In 1992 and 1997 *external evaluations of the programme* performed by official committees of experts on teacher education, researchers, and representatives of secondary schools led to highly positive outcomes. In 1997, 25 out of 34 evaluation criteria scored 'good' or 'excellent', including the criteria 'value of programme content' and 'professional quality of the graduates'. The school principals in the committees reported that they considered Utrecht graduates to be the best teachers in their schools. In the nine other criteria the programme received the qualification 'sufficient'. No other Dutch teacher-education programme received such high evaluations.

Implications for Teacher Education

The realistic approach concurs with the model of teacher learning proposed by Clarke and Hollingsworth (2002), who also advocate "[the placing of] 'the pedagogy of teachers' (that is, the theories and practices developed by teachers) at the heart of our promotion of the professional growth of teachers" (p. 965). It should be emphasised that the development of a programme based on the principles of realistic teacher education may take much time and energy, especially as it requires that teacher educators assume a special and often unconventional role. To achieve the following, they often need to go through a deep process of professional change that affects their professional identity:

1. They must be able to create suitable learning experiences for student teachers, in which these student teachers can develop fruitful gestalts as the basis for the next step.
2. They must be competent in promoting further awareness in student teachers as the student teachers reflect on their gestalts and thus develop fruitful personal and formal theories. It is often helpful to take as a starting point for reflection *one* concrete, recently-experienced and relatively short teaching situation that still evokes some concern or question in the student teachers. It is our experience that for many teacher educators, this is not an easy role to take.
3. They must be able to offer theoretical notions based on empirical research in such a way that these notions fit the student teachers' reflections on their existing gestalts and support them as they develop helpful practices. Moreover, after the students have developed personal practical theories, they should reflect on the relation between more formal theories and their own thinking. Only then will a real integration of practice and theory take place.

The realistic approach to teacher education has consequences not only for the types of interventions teacher educators should make to promote the intended

learning process in the student teachers but also at the organisational level of teacher-education curricula. First of all, linking theory and practice with the aid of the ALACT model requires frequent alternation of school teaching days and specific meetings aimed at the deepening of teaching experiences. Secondly, in order to harmonise the interventions of school-based mentor teachers and institute-based teacher educators, close cooperation between the schools and the teacher-education institute is necessary. Not every school may be suitable as a practicum site: the school must be able to offer a sound balance between safety and challenge and a balance between the goal of serving student teachers' learning and the interests of the school.

The approach advocated here implies that it is impossible to make a clear distinction between different subjects in the teacher-education programme. The realistic approach is not compatible with a programme structure showing separate modules such as 'subject matter methods', 'general education', 'psychology of learning', and so forth, meant to provide student teachers with knowledge they can later apply to their own practices. Relevant and realistic teacher learning is grounded in gestalts formed during experiences, and teaching experiences are not as fragmented as the structure of many teacher-education programmes would suggest.

All this implies the need for professional development of teacher-education staff and mentor teachers, an issue often overlooked (Koster & Korthagen, 2001). Most teacher educators do not receive any formal preparation for this profession, whereas several authors emphasise that being a good teacher does not automatically mean being a good teacher educator (Arizona group, 1995; Dinkelman, Margolis, & Sikkenga, 2006; Murray & Male, 2005). The team of teacher educators at Utrecht University have invested much time and energy in their own professional development, through training sessions, intensive staff meetings, all kinds of collegial support, and structured individual reflection. Without such an investment in the professional development of teacher educators the changing of traditional habits in teacher education would appear to be a difficult matter.

Conclusion

In conclusion, it is possible to bridge the gap between theory and practice in teacher education if we put the emphasis on student teachers' experiences, concerns, and existing gestalts, and work towards level transitions as described by the three-level model of teacher behaviour and teacher learning. Here the principles of realistic education provide a gateway. As we have seen, teacher education can make a difference, but this requires (1) careful programme design, based on (2) a clear view of the intended process of teacher learning, (3) specific pedagogical interventions, and (4) an investment in the education of teacher educators (Korthagen, Loughran, & Russell, 2006). In the development of a programme based on the principles of realistic teacher education, each of these components may take much time and energy, especially as they require from teacher educators a specific and often unconventional role.

A warning has to be given regarding an extreme elaboration of the realistic approach. In many programmes in the world at large, the traditional approach of 'theory first, practice later' has been replaced by the adage 'practice first, theory later'. Many alternative programme structures have been created in which novice teachers receive very little theoretical background and teacher education becomes more of a process of guided induction into the tricks of the trade. Often this trend is influenced by the need to solve the problem of teacher shortages. Although this development may satisfy those teachers, politicians and parents who criticise traditional practices in teacher education, there is a great risk involved. The balance seems to shift completely from an emphasis on theory to reliance on practical experiences. Such an approach to teacher education does not, however, guarantee success. Long ago, Dewey (1938, p. 25) stated that "the belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative" (cf. Loughran, 2006, p. 22). As discussed above, teaching experience can be a process of mere socialisation into established patterns of practice rather than an opportunity for sound professional development (cf. Wideen, Mayer-Smith, & Moon, 1998). There is a risk that in a 'practice first approach' the basic question, namely *how to integrate theory and practice*, will remain unsolved. This integration is the basic feature of the realistic approach, and this article may have clarified that this requires much more than a shift away from university-based teacher education towards a school-based alternative.

Moreover, as we have emphasised above, student teachers have to learn how to direct their own professional growth through the use of structured reflection as a means of integrating theory and practice. Hence too much emphasis on learning the 'tricks of teaching' is counterproductive to life-long professional learning.

Recent Developments

Currently there are new developments taking place in the theory of realistic teacher education. In particular, significant changes are taking place in the approach to reflection. The ALACT model is in itself only a process model and does not describe the content of the reflection. To fill this gap, a model has been developed which describes content levels of reflection. This so-called *onion model* appears to be helpful for deepening teacher reflection. It describes six of such levels: (1) environment, (2) behaviour, (3) competencies, (4) beliefs, (5) professional identity, and (6) mission (Korthagen, 2004). This onion model can be applied to a variety of different contents of teachers' reflections, for example didactical or pedagogical reflections, or reflections about collaboration with colleagues. We talk about *core reflection* if the inner levels (5 and 6) are included in the reflection process and if the person considers the relations of these inner levels with the more outer levels of competencies, behaviour, and environment (Korthagen & Vasalos, 2005).

Moreover, under the influence of positive psychology (Seligman & Csikszentmihalyi, 2000), the importance has been discovered of reflection on positive experiences, successes and ideals instead of on problems and failures. Such a shift in focus makes it easier to include the inner levels of the onion model in the reflection process. This implies that concerns and ideals deeply ingrained in teachers' thinking are touched upon and used as starting points for deep reflection and enduring professional change. Recent research has shown the strong impact of this new view of reflection on the supervision of teachers (Meijer, Korthagen, & Vasalos, 2009; Hoekstra & Korthagen, 2011).

Within the limitations of the present article we cannot address this area in greater depth, but this brief sketch of recent developments illustrates that the realistic approach is not a static framework but rather a dynamic view of teacher education that is open to adaptation and cultural change. This view continues to evolve, and as a result of the translation of publications on the realistic approach into many different languages, this evolution is currently taking place in a variety of countries at the same time. It is to be hoped that this will have a beneficial effect on teachers and pupils all over the world.

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Contact information
Fred A. J. Korthagen
Centre for Educational Training Assessment and Research (CETAR)
VU University
Takstraat 14
3572 HZ Utrecht
The Netherlands
f.korthagen@uu.nl

SELECTED THESES FOR A SUSTAINABLE TEACHER EDUCATION PROGRAMME

PERTTI KANSANEN

University of Helsinki

Abstract: *The purpose of this article is to outline conditions necessary for the guaranteeing of sustainable teacher education. Five theses are developed in the text related to the esteem in which a teacher's work is held, selection of student teachers, teaching competencies as aims and goals of teacher education programmes, and basic and conceptual levels in teacher education. Research-based teacher education guarantees the integration of the basic level with the conceptual level through twofold practising. The outcome is a reflective teacher with pedagogical thinking who is able to develop as a practising teacher in changing circumstances.*

Key words: *esteem in which a teacher's work is held, selection for studies in teacher education programmes, basic and conceptual levels in teacher education, research-based teacher education*

To Begin With

A scientific approach as well as the role of research and its academic quality are common characteristics in current literature that addresses teacher education. What the writers really mean by these concepts is mostly left without closer definition. A popular stance might be that the place for teacher education is at universities. In most European countries and in the western world teacher education certainly takes place at universities, but this does not mean that it is academic, based on research, or scientific by nature (Moon, 2003).

It is relatively easy to present some fundamental criteria that characterise the scientific nature of teacher education and the roles played in it by research and academic quality. First of all it is a question of a research university where research and teaching build up a unity. Teachers in a university, that is professors, university lecturers and doctoral students, teach in the area where they do research according to the well-known Humboldt principle. Teaching is founded to a great extent

on research of their own and should be evidence-based on this basis (cf. Hattie, 2009). Students, on the other hand, study their main subject in depth and have supplementary subjects in their programme to strengthen future expertise. The studies culminate in a research thesis at master's level. This has to be a systematic research report, preferably an empirical study based on a theoretical framework. This presupposes studies in research methodology with diversified methods and their practising. A great many essays are included in the programme for the practising of academic writing. Studies in research methodology should be many-sided, and preferably mixed methods by nature. On the one hand, the studies aim at expertise for the consuming of research results in one's own work; on the other hand they aim at solving everyday problems in teaching and producing new knowledge in one's own work.

Criteria of this kind belong among university studies in all subjects – not only in physics, biology, philology, political sciences, etc., but also in education. So why not in teacher education? What is surprising is that research is not necessarily included in studies at master's level. Secondly, teacher education quite often takes place without scientific content and is only school-based or is based mainly on personal experiences. Can we afford such an elementary teacher education?

It is well known that the reputation of education and pedagogy is not particularly high in the academic world. The position of the teaching profession and its academic esteem are two different things. The esteem of both, however, has long been low. In the history of teacher education the status of teachers' colleges has been discussed in the USA (Allison, 1995; Labaree, 1997, 2003) and also similar problems have been addressed in the Nordic countries. Teaching colleges have long been local institutes, their teaching staff has been modestly educated, students have not been drawn from the best academic groups, curricula have been practice-oriented and studies have been lacking in depth.

The status of pedagogy and education and in particular the poor esteem in which they are held, have aroused discussion in the professional journals (Kaestle, 1993; Sroufe, 1997). The most extreme expression has been contempt for education (Prange, 2008). There has been been no lack of defenders of education over the years: Gage (1994) and above all David Berliner have responded in a convincing way to the critique (2000, 2002, 2005). The discussion has, among other things, lead to certain professional recommendations (Shavelson & Towne, 2002).

Economy has always played an important role in education; the teacher's salary has never been especially appealing. In spite of this there have always been young people who want to work with children, perhaps because they consider this work some kind of calling. Today we prefer to speak of motivation, of intrinsic motivation in particular. Those who want to work with children are usually highly motivated to do so. Circumstances vary quite a lot, even in the Nordic countries. We know that in certain countries teachers do not stay at schools for long before they start to look for other jobs. Macdonald (1999, p. 837) notes that "… less than 10 % of teachers in Germany reach normal retirement age".

An additional fact is that most student teachers are young women. It is a common trend in the European schools that the proportion of male teachers in schools is subject to a gradual but considerable decrease. Feminisation is not a matter that affects only education; it is a more common phenomenon. In this respect the situation is the complete opposite of the situation that existed in the mid 19th century, at the time of Friedrich Fröbel, when most kindergarten teachers were men.

Spencer (2000; 2001, pp. 804–806) gives an historical overview of the feminisation of teaching in the USA. In the early years of the 19th century there were women teachers only in some schools for small children, but with the development of industrialisation conditions underwent great change. Men moved into administrative positions while women entered teaching in great numbers. Teaching was also one of the first professions that was respected to such a degree that women were encouraged to look for jobs in it. The same happened in the Nordic countries, in even greater numbers.

Since the emergence of feminisation in the teaching profession, the question has been raised of how men react to the fact that they are in a minority. There are only a few research reports that address this question (Spencer, 2001, pp. 808–809). In one study men in four female-dominated professions were interviewed; the men were nurses, librarians, social workers, and teachers. These men did not experience discrimination; instead they were expected to behave in certain ways. As a result the men looked for more prestigious positions as administrators and supervisors. The other side of the coin is that the men reported that the public is often suspicious of the reasons they have for working in low-status, female-dominated occupations. Role conflicts may also arise: if men are too masculine, their competence as teachers may be questioned; if they are nurturing and emphatic, they may be considered feminine. Behaviour considered natural in male teachers at upper-secondary school or grammar school may arouse suspicion when it is displayed by male kindergarten teachers.

Difficulties in encouraging young people into the teaching profession may lead to problems of quality. Studies might become too hard and rejections and drop-outs might increase; such outcomes have occurred in Germany. A dangerous consequence might be that curriculum planners and teacher educators start to pay too much heed to the wishes of students, with a consequent lowering of requirements. A shortage of teachers in schools may now and then lead to exceptional teacher education, but this is mostly temporary. In any case the discussion has been opened on how to attract more males into the teaching profession.

There are, however, circumstances of another kind. In Finland, for example, the largest weekly periodical *Suomen Kuvalehti* has for a long time conducted a nationwide survey every third year concerning the esteem in which certain occupations are held. From the results it is possible to identify certain viewpoints as they develop over the years. Most of the occupations in the top ten are medical occupations. The esteem in which nurses are held is high and has increased over time, although salaries have not risen at the same rate. Also remarkable is

the position of firemen (Table 1). All this reflects policies of safety and security in society; citizens value occupations which apparently guarantee their safety and make their lives secure.

Table 1
The esteem in which some occupations are held in Finnish society

	2004	2007	2010
Surgeon	01/380	01/381	01/380
Fireman	05/380	02/381	04/380
Nurse	09/380	06/381	10/380
Special-needs teacher	23/380	21/381	22/380
Speech teacher	27/380	28/381	37/380
Psychologist	31/380	33/381	26/380
Professor	33/380	41/381	39/380
Kindergarten teacher	34/380	22/381	31/380
Class teacher	46/380	40/381	42/380
Subject teacher	72/380	66/381	62/380
Salesman door-to-door	380/380	381/381	380/380

From: Suomen Kuvalehti, 2004; 2007; 2010.

Some teaching occupations achieve a fairly high position among the 380/381 occupations. The teaching profession is valued relatively highly among young people. As a consequence Finnish universities receive many applications for courses in teacher education. This refers both to primary teachers, who have total responsibility for teaching during the first six years, and to subject teachers who work with the lower-secondary classes. When there are, for example, 1500 applications for 100 places, this creates the problem of how to select the most suitable candidates. It also leads to research on entrance examination, which is not possible if there are not enough applicants for selection. From the viewpoint of the individual it can be very difficult to decide which criteria to use in the selection and to determine how reliable the selection is. From the viewpoint of society this is no problem at all because among so many applicants there will certainly be enough motivated and talented students to ensure that requirements are met. All this means that students of teacher education are exceedingly well qualified among students of other subjects at Finnish universities.

One interesting aspect of problems connected with the esteem in which a teacher's work is held, is a change in language use to better correspond to the academic study of teacher education and, accordingly, new circumstances in the field. Traditional, old-fashioned terms (*teacher training*, *Lehrerausbildung*) remain in use; in the USA, however, *teacher education* has long been used instead of *teacher training*. In Germany this would mean a change from *Lehrerausbildung* to *Lehrerbildung*.

This introductory reflection can be concluded with a first thesis for the teacher education of the future.

First thesis: **Society should do its very best to raise the esteem in a teacher's work is held and maintain its status in order to attract the best possible students to the teaching profession.**

A Theoretical Frame of Reference for Teacher Education

It is self-evident that all kinds of programmes for teacher education aim at educating good teachers. However, if we ask what a good teacher is like, we are likely to get a wide range of different answers. To a certain extent there is general agreement when we specify the qualities we think characterise a good teacher. Quite often these are personality traits which are so general that they express nothing important. A good teacher should be motivated, friendly, just, fond of children, enthusiastic, competent, etc. We might ask ourselves how is it possible to produce such teachers and struggle to think of criteria for the identifying of such traits. We also know that it is difficult, if not impossible, to change a person's personality no matter how long teacher education takes.

A possible solution for the guaranteeing of certain personality traits would be to apply the procedure that Korthagen (2004, pp. 86–87) recommends. He divides the properties which characterise a good teacher into two categories: qualities and competencies. Qualities, core qualities in particular, are inherent and very difficult to change. Character strengths and virtues such as creativity, courage, kindness, and fairness are examples of such core qualities. In distinguishing between qualities and competencies we could say that qualities come from the inside while competencies come from the outside. As examples of competencies Korthagen (2004, p. 86) presents "… the ability to take into account different learning styles or to reflect systematically". All this reminds us of the old discussion about teaching as an art or a science (cf. Skinner, 1954; Gage, 1978). A practical conclusion might be the selection of student teachers according to qualities, because these are difficult to change. Competencies can be developed and function as aims and goals for teacher education. A further encouraging viewpoint is that qualities come close to intrinsic motivation through attributes like mission and calling (Hansen, 1995).

Second thesis: **Student teachers should be selected according to qualities; competencies should be the aims and goals of teacher education.**

It may be said with good reason that all possible types of teacher-education programmes have been experimented with at some time somewhere (e.g., Howey, 1996). It is also interesting that there are different opinions on different kinds of teacher-education programmes. The ideas behind and the content of programmes are also, of course, subject to economic and political considerations. My experiences seem to prove that there are great differences between the ideas of politicians on the one hand and experts on the other concerning this question. It is also true that educational policy in some countries steers the content of teacher education more than it does in others. My firm belief, however, is that teacher education should

be based on research. Above all the problem in this respect is whether we have sufficient research evidence. How about research reports? What do they tell us?

Ideas of what makes a good teacher and good teaching are normative concepts for which there is no clear research evidence. We can, however, examine handbooks and meta-analyses in the field concerning the effectiveness and other consequences of teacher education (Cochran-Smith & Fries, 2001; Darling-Hammond, Chung, & Frelow, 2002; Hemsley-Brown & Sharp, 2003; Cochran-Smith & Zeichner, 2005; Zeichner & Conklin, 2005; Townsend & Bates, 2007; Cochran-Smith, Feiman-Nemser, McIntyre, & Demers, 2008; Hattie, 2009). It should be stated at once that the results are very modest and diffuse. Problems with teacher education are extensive and difficult to examine. This means that the development is slow and evidence for the building of a programme for teacher education is insufficient for the time being. In addition to research, theorising is needed.

There are, however, some encouraging studies concerning the effects of teacher education which may lead the way for our reflections. Wilson, Floden, and Ferrini-Mundy (2001) were able to find slight evidence in support of the programmes of teacher education, although this is not convincing or unambiguous. In a meta-analysis consisting of 57 strictly selected research reports they posed first the question of how much a teacher should have in terms of content studies. Although no clear answer was to be expected, the quantity of content studies was correlated positively with the achievements of students. This is a controversial issue of longstanding that regularly enters the discussion, the given programme of teacher education notwithstanding. It was seen as important, however, that the increasing of these kinds of basic studies did not increase this correlation. There is presumably a certain threshold effect (p. 8), and the exceeding of the threshold increases the correlation minimally. The problem is discovering where the threshold lies. It turned out that studies in the pedagogy of content (pedagogical content knowledge, Fachdidaktik) were more promising. The results confirm the old view that content studies are needed and a wide knowledge of content is certainly of use, although how much and of what kind it is not possible to say. Content studies are apparently not enough but studies in the pedagogy of content are necessary and of value. Although the evidence here is not clear or strong, it is of paramount importance that such views are not ignored, even though studies in the pedagogy of subjects are questioned every now and then.

Another point in their study (Wilson, Floden, & Ferrini-Mundy, 2001) dealt with studies in education. This question turned out to be even more difficult than the first. They discovered a small general benefit, which, however, was not clear. To get more satisfactory evidence a highly sophisticated research design would be needed; this seems to be impossible for the time being. Studies in education are also too extensive to be considered as a totality, and thus they should be divided into smaller parts.

The same problem applies to the third question dealing with the practice of teaching or student teaching. It, too, is too extensive and complicated. It is extremely problematic to distinguish from each other content knowledge and how

to teach it, the study of education and the practice of teaching. They build up a totality that cannot be divided into separate parts without losing significance. A quick conclusion is that we do not have enough research evidence for the creation of a sustainable programme for teacher education.

A necessary concluding comment deals with the role of content knowledge. It is highly probable that content knowledge of sufficient depth is fundamental. Out traditional understanding is that the older the students, the deeper the content knowledge needed. Expertise consists of a particular knowledge, but it is essential to bring it together with its pedagogy, with how to teach it. Expertise is, however, a dimension by nature. With older students, content knowledge is more closely related to an academic subject or developed knowledge area (physics, English, history, music, sport, etc.). For small children and younger students content is more general and pedagogical by nature. The balancing of all parts of the instructional process is a fundamental principle throughout the programme; all parts are important.

Third thesis: **A programme for teacher education should be based on research. Research evidence concerning teacher education increases gradually.**

Diversity of Teacher Education: the Basic Level and the Conceptual Level

A well-known conundrum in teacher education is that the idea of what makes a good teacher and good teaching changes over the years. The programme of teacher education should therefore be general so that it will be applicable, too, in the future, when the conception of what makes a good teacher and good teaching has developed away from the conception current at the time the teacher education was carried out. Technology in education and schools is developing at a very rapid tempo and it may bring about great changes in school life, teaching and studies in teacher education. Also, it is impossible to predict how medical technology will develop and influence teaching, studying and learning. What is certain is that we do not know what will happen in the future. What kind of challenges will the future pose for teacher education?

One possible suggestion for the solving of this conundrum is to consider teacher education from two perspectives or strata (Kansanen, 2004). The first deals with everyday practice with all possible standard teaching methods and acting in practice. We can call this the basic level of teacher education. For most people it is useful to go through the basic level of teacher education with all its activities and everyday experiences. It is interesting to consider whether the basic level is necessary for all or it is possible to replace it with other activities. There are plenty of examples of people who have succeeded quite well as schoolteachers without any teacher education at all. In discussion the idea is often presented of a so-called innate teacher, i.e. a person who works with children and youngsters easily. It is

commonly understood that it is possible to learn a teacher's work at school on a course of study; even the role of student can improve readiness for work as a teacher. Teacher education, however, makes learning of competencies systematic and confident.

Teacher education at the basic level may be organised in many different ways and it is also relatively easy to set up. It is also possible to complete these basic competencies in continuing education, too; with concise courses and seminars it is fairly easy to concentrate on compact practical themes without deeper theorising. It is fairly probable that teacher education at the basic level is in principle relatively similar in different parts of the western world. There are, of course, differences as regards the content and it is common to profile a programme with certain special aspects. The programme can emphasise music, sport, media, etc. Common to all programmes at the basic level is their normative nature and the absence of demands for a depth of scientific knowledge. It is also frequent that teacher educators have had no education in research methods and that research is not included in their work. The programme can, however, be called research-based if it is built on research evidence. This means in practice that teaching is based on research literature.

Although teacher education is based in universities it does not guarantee anything other than education at a basic level. Characteristically it is based on everyday practice; from the theoretical viewpoint it is inductive and decisions are based on intuitive thinking and personal experience. It is also typical for teachers to rely on the doxa that informed their own studies in teacher education. Without a scientific education of their own, teachers do not have the qualifications for critical thinking, or for the evaluation of the status of the programme and the new pedagogical information that is continually presented.

It can be claimed that programmes of teacher education to a great extent stay at a basic level and go no further. It is characteristic of them that students study numerous practical courses and become acquainted with the general activities of a school. Students learn to teach and life in schools becomes familiar to them. The basic competencies are in focus and, accordingly, so is a basic knowledge of the instructional process. The requirements of content knowledge are so extensive that it is no problem to fill a programme of four or five years with rich content. The potential content is, in fact, so abundant that it must be restricted; it is not possible to find room for all recommendations. There is no end to new claims for content, and new claims appear continuously. It is typical that numerous content courses are presented side by side without there being any connection between them. This produces only horizontal knowledge. The problem is that such courses are mainly separate modules without continuation.

Institutes which concentrate on the basic level have certain things in common. As stated above, teacher educators who work at the basic level usually have no research competence; they have not completed a doctorate. Research is not among the responsibilities of teacher educators in such institutes, so it is understandable that teacher education takes place at the basic level. That is not, however, a

hindrance to high quality; it is important that teacher education at the basic level functions as well as possible. Consequently the basic level forms the foundations for a teacher's work in general and also builds a base for further teacher education. Great demands are made of teacher education throughout the world (e. g. Cochran-Smith, 2008) and it is subject to constant, universal development.

> Fourth thesis: **All teacher education is based on the basic level, which is a very important foundation for further teacher education. Teacher education should not stay at the basic level.**

Following the basic level of teacher education, a more conceptual level is to be desired. Compared with the basic level, the conceptual level is probably very difficult to acquire without supervision. The core of the matter is somehow to apply metacognition in thinking when teaching. This means considering one's own work and decisions from the outside. This requires a certain distance to one's own work, which happens usually through self-reflection, discussions with colleagues, and research (Bengtsson, 1993). Such reflection or similar thinking is not uncommon in programmes of teacher education, and some courses include themes such as metacognition, problem-solving, decision-making, and pedagogical thinking (e.g., Howey, 1996). The placing of the conceptual level as a main organising theme (Galluzo & Pankratz, 1990), however, is extremely rare. This is precisely the idea presented here.

For its development, self-reflection needs support; this means the producing of stimuli to reach new insights into thinking. For this reason dialogues and discussions are useful. If the partner in the discussion has not much to contribute, however, stimuli must be searched for in another way. It is probably research that offers the best alternative in this respect. Research in teacher education means getting acquainted with research literature, trends and results and also practising research in one´s own work.

To avoid misunderstanding it is important to emphasise that practice on the conceptual level does not mean that teachers should act like professional researchers. It is appropriate instead to call this kind of teacher a 'practitioner researcher' and the activities that teachers perform 'practitioner research'. This reminds us very much of action research, and a teacher's work as a practitioner researcher can for good reason be acknowledged as a type of action research. All this leads to research-based teacher education (Kansanen, 2005, 2006, 2007). As a matter of fact, action research is a widely accepted approach in Finnish teacher education. It emphasises the close connection between research and practice (Estola, Lauriala, Nissilä, & Syrjälä, 2007, p. 195; Niemi, Heikkinen, & Kannas, 2010).

> Fifth thesis: **A basic level of teacher education is not enough; a conceptual level is necessary. This requires research-based teacher education.**

Research-Based Teacher Education

A traditional part of teacher education has always been all kinds of practising and student teaching. To learn to teach means practice in the school and in the classroom. Practising is usually closely connected with the basic level; it corresponds with everyday thinking and competence-based behaviour. Students often like to resort to teaching recipes which they can find in many normative textbooks of pedagogy or in the teaching of their teacher educators. It is interesting that if we ask teacher educators whether they use recipes they usually deny it vociferously. But if we ask student teachers whether their teachers give them recipes, they give plenty of examples, claiming that this happens all the time (Kansanen, Tirri, Meri, Krokfors, Husu, & Jyrhämä, 2000). At the basic level it is of primary importance to collect experiences and routines for the future. Gradually student teachers develop into experienced professionals in practical situations.

It is important to note that research-based teacher education and evidence-based teaching mean practice in research. Student teachers practise teaching and research simultaneously. This can be called 'twofold practising' (Krokfors, 2007) and it is intended for integration into one's own teaching. To practise on the basic level means many-sided courses on research methods and study exercises. It is a question of method studies, to begin with, of a kind of absorbing without deep autonomous understanding; at the same time one's own teaching is fact-based with hardly any competencies for critical pedagogical evaluation. The role of research resembles the role of a consumer, where to a certain extent application is routine and superficial (Young, 2001).

As the student teachers move through the conceptual level, the action changes (Figure 1).

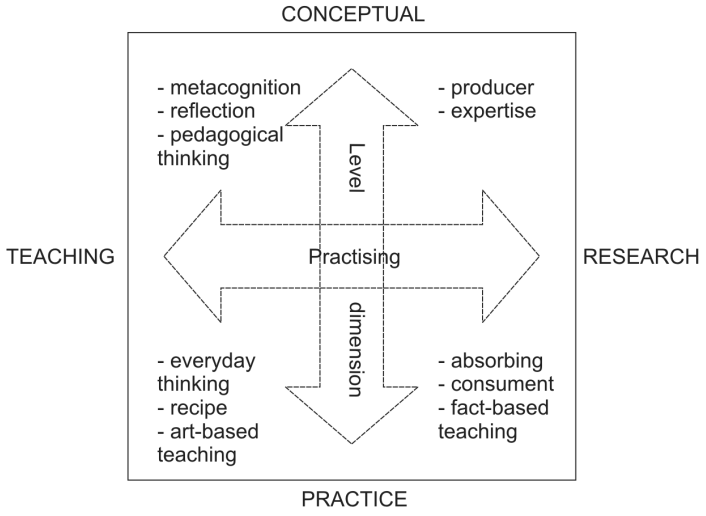

Figure 1. Teacher education as twofold practising with teaching and researching

In Figure 1 it can be seen how the conceptual dimension and twofold practising are blended. In teaching, the metacognitive competencies begin to take up a position. Student teachers learn to justify their decisions through research knowledge and have the means to reflect on their own teaching through the researching of their own work. This is the core in teachers' pedagogical thinking (Kansanen, Tirri, Meri, Krokfors, Husu, & Jyrhämä, 2000). In terms of research it is a question of expertise concerning one's own work. Now it is a question of producing new knowledge, i.e. knowledge that is new to the teachers themselves concerning their own work (Young, 2001). The basic purpose is the development of a personal conception of teaching, i.e. development of a pedagogical theory of one's own (Fitzgibbons, 1981).

It is of paramount importance to understand the idea of the practitioner researcher. The difference between a professional researcher and a practitioner researcher (Richardson, 1994) is an essential one. The professional researcher works in order to participate in scientific discussion and to publish in scientific journals. The practitioner researcher utilises research to grow and become better at the teacher's work; the practitioner researcher examines accordingly his/her own work without any intention of publishing the findings (Cochran-Smith & Lytle, 1990).

In research-based teacher education all teacher educators should have professional knowledge of research. Further, if the department of teacher education is one department among other departments in a university with identical requirements, high demands will be placed on teachers. To be able to supervise master's theses on the conceptual level, high scientific competence is required. This means that the supervisor should have a doctorate. Development in this respect may be slow. Let us take an example from the University of Helsinki. Teacher education was reformed in 1979 with a master's examination for all teachers in the school system. This means an examination at the same academic level for all teachers from grades 1 to 12. Along with the development of teacher education programmes, requirements for teacher educators were also increased. Now there are three categories of university teachers: professors, university lecturers who are doctors, and doctoral students. In addition, in the university practice schools where the student teachers practise, the supervising teachers are themselves holders of a master's degree. All of them are in some way responisible for research. In Table 2 it can be seen how scientific competence has increased over the years (Rantala, Salminen, & Säntti, 2010).

Table 2
Increase in scientific competence among teacher educators at the University of Helsinki (%)

	1979	1989	1999	2008
PhD	19	18	35	65
MA	39	43	47	28
BA	6	8	6	2
Other	19	12	6	0
N	52	67	71	93

Sixth thesis: **Research-based teacher education guarantees the integration of the basic level with the conceptual level through twofold practising. The end result is a reflective teacher with pedagogical thinking who is capable of development in his/her work as a teacher in line with changing circumstances.**

Conclusion

The purpose of this article is to present the conditions necessary to guarantee a sustainable teacher education. The approach is highly normative and personal and is based as far as possible on research reports and the evidence of research. The key concept is research and how it is possible to base teaching on research. A programme for teacher education is, however, an extensive and complicated totality and the theses I have presented form only a framework for this. Whether or not a better principle than research could be found for use as a basis for teacher education, is a critical question. My answer to this is in the negative with deep conviction. The consequence is the theses which have been developed in the text.

- Society should do its very best to raise the esteem in a teacher's work is held and maintain its status in order to attract the best possible students to the teaching profession.
- Student teachers should be selected according to qualities; competencies should be the aims and goals of teacher education.
- A programme for teacher education should be based on research. Research evidence concerning teacher education increases gradually.
- All teacher education is based on the basic level, which is a very important foundation for further teacher education. Teacher education should not stay at the basic level.
- A basic level of teacher education is not enough; a conceptual level is necessary. This requires research-based teacher education.
- Research-based teacher education guarantees the integration of the basic level with the conceptual level through twofold practising. The end result is a reflective teacher with pedagogical thinking who is capable of development in his/her work as a teacher in line with changing circumstances.

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Contact information
Pertti Kansanen
Professor Emeritus of Education
Department of Teacher Education
Faculty of Behavioural Sciences
University of Helsinki
PO Box 9 (Siltavuorenpenger 5A)
FI-00014 University of Helsinki
Finland
pertti.kansanen@helsinki.fi

FOSTERING SELF-REGULATED LEARNING WITH PORTFOLIOS IN SCHOOLS AND HIGHER EDUCATION

MICHAELA GLÄSER-ZIKUDA, JAN FENDLER, JULIA NOACK, SASHA ZIEGELBAUER

Friedrich Schiller University in Jena

Abstract: *The portfolio is often described as an approach effective for the fostering of self-regulated learning in different educational areas. The processes of planning, documenting, and reflecting on individual learning activities are core issues of the portfolio approach. Two aims of the use of portfolios in education are discussed in this contribution. First, the enhancement of self-regulated learning and learning competencies is an important topic. Second, aspects of evaluation and assessment through the use of portfolios are discussed. In this context, the application of portfolios may be seen as an example of a shift from teacher-based instruction to student-centered learning. However, up to now, there has been a lack of empirical evidence regarding these assumptions. In this contribution, three studies are presented that focus on portfolio implementation for the fostering of self-regulated learning in schools, teacher education, and higher education. Central theoretical aspects of the portfolio concept and empirical designs of the studies are described.*

Key words: *self-regulated learning and learning competencies, accent on learning rather than teaching, portfolio as a tool, portfolio types, studies on portfolio implementation in school, teacher education, higher education*

Introduction

For several years now, there has been an increased interest in the potential of self-regulation and self-monitoring in learning. Self-monitoring, understood as the systematic observation and documentation of thoughts, feelings and actions regarding the attainment of goals, is one element of self-regulation (Bandura, 1982; Zimmerman, 2000). Baumeister, Heatherton, and Tice (1994) point out that a lack of self-monitoring is a central cause of failure in self-regulation. Three phases of self-regulation may be described during the learning process: (1) a planning or pre-

actional phase, (2) an actional phase, and (3) a post-actional or reflectional phase (Schmitz, Schmidt, Landmann, & Spiel, 2007). In the pre-actional phase, the learner compares his or her actual status with the desired goals. During the actional phase, the learner documents and reflects upon the learning process (self-monitoring). In the post-actional phase, the actualized status and attainment of goals are compared with expectations at the beginning of the learning process. In general, it is assumed that self-regulation represents an essential ability to cope with complex, constantly changing life requirements, especially those of professional life (Zimmerman, 2000). Self-regulation is understood as a developable competence focusing on cognitive, metacognitive, motivational and social processes (Boekaerts, 1995; cf. Gläser-Zikuda & Järvelä, 2008).

Results of international large-scale assessments of 15-year-old school students, such as PISA (Prenzel, Artelt, Baumert et al., 2008) or TIMSS (Baumert, Lehmann, Lehrke et al., 1997) have shown that students' learning strategies, one important indicator of self-regulation, may be characterized as superficial. In addition to this, it was shown that students are able to use their knowledge in school contexts, such as tests, but they have great problems using their knowledge in authentic contexts to solve problem-based tasks (Gruber, Mandl, & Renkl, 1999; Renkl, 1996). The same problem is identified in higher education (Hmelo-Silver, 2004).

Consequently, school instruction – as well as instruction at higher-education level – should focus on the development and support of students' acquisition of knowledge, learning strategies and competencies that concern the solving of complex problems. Such an understanding of instruction presumes a learning environment characterized by various, complex and challenging tasks, which are student-focused and relevant to real life (Kember, 1997). Accordingly, in teacher education the acquisition of essential professional competencies is crucial. In this respect, the portfolio approach is a promising option.

The Portfolio as an Instrument of Self-Reflection

In education there is a long tradition of using different approaches to motivate learners to document and reflect upon their learning processes. Written formats in particular are seen as very supportive (Auferkorte-Michaelis & Szczyrba, 2004). Instruments such as learning diaries, learning journals or protocols, and portfolios have been developed. From the perspectives of learning psychology and educational science, these approaches have contributed to a paradigm shift from teaching to learning (Berendt, 2005). Learning diaries, for example, have a broad and long tradition in different disciplines, e.g., in clinical, educational, and social psychology (Seiffge-Krenke, Scherbaum, & Aengenheister, 1997). A learning diary, for example, allows and supports continuous documentation of and reflection on learning processes. Complementary to a learning diary or learning protocol, a portfolio is characterized as a collection of documentation and reflections on learning processes and outcomes, as well as operating for their evaluation and assessment (Paulson, Paulson, & Meyer, 1991). In the same way, a teaching

portfolio helps the documenting of and reflecting on professional development in teaching (Sczcyrba, 2008; Auferkorte-Michaelis & Sczcyrba, 2004). Teachers use portfolios to write about their teaching biography, teaching philosophy, applied teaching methods and evaluations, as well as about the effectiveness of their instruction. In our understanding, the teaching and the learning portfolios are the same instrument with different perspectives and learning goals. The teaching portfolio and the learning portfolio can be categorized in five different types (Spandel & Culham, 1997) as follows: (1) The working portfolio is used to document strengths and weaknesses of a learning process (diagnostic purposes, and for consultation); (2) Learning progress and improvement are in the focus of a developmental portfolio. Learners can more easily observe and evaluate their own learning processes and plan further learning steps; (3) The presentation portfolio is a collection of an individual's best learning documents or products and is used to demonstrate personal abilities in one or more than one domain; (4) The fourth type is an evaluation or assessment portfolio, which helps to document a learner's performance; (5) Finally, the application or showcase portfolio focuses on the documentation of and reflection on qualifications and performances.

Furthermore, communication and reflection on learning processes and outcomes with classmates, teachers, and parents play an important role. In addition, for all portfolio types reflection and discussion on differences between self-reflection and external feedback is required. The guidance of learners regarding aims and objects of reflection is helpful for the development of a portfolio. One way of doing this is by giving written instructions on the main objectives. A second possibility is the formulating of open, guided questions or 'prompts' focusing on the purpose and aim of reflection (Berthold, Nückles, & Renkl, 2007).

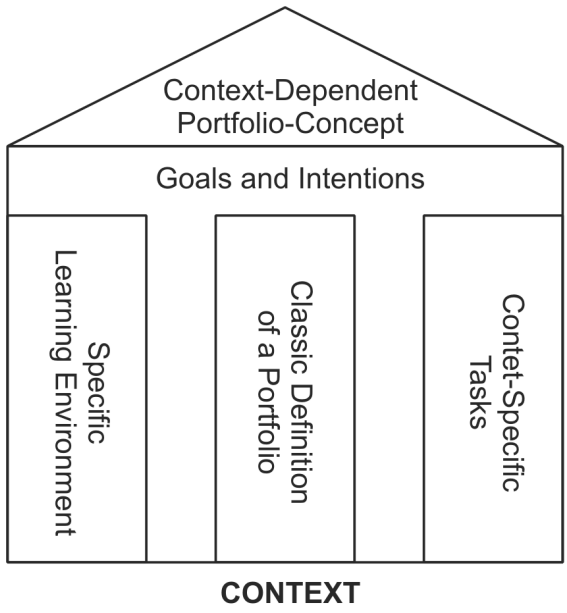

Figure 1. Concept of a context-dependent portfolio concept

As shown above, there are specific consequences of the application of portfolios in different contexts (Figure 1). Furthermore, the portfolio concept has an influence on the learning environment itself. In secondary-school and higher education, a complex, demanding, and student-oriented learning environment is required in order for students to gain competence in self-regulated learning and to support students' autonomy.

The portfolio concepts presented in this paper describe examples of the application of portfolios from different perspectives and in different contexts. First, a portfolio concept will be described as a learning tool and as an element of a competence-oriented learning environment in physics education. Second, the use of a portfolio concept for professional development in teacher education will be presented. Third, the application of a teaching portfolio as an assessment and learning tool in higher education will be illustrated.

Portfolio Concepts in Various Contexts

Promoting students' self-regulation and learning competencies using portfolios in physics education

Following on from a discussion of educational standards, education should focus not only on fostering students' declarative knowledge, but also on submitting key skills like problem-solving, self-regulation, and social competencies. The aim of this claim is to enable students to cope with multiple challenges in complex life situations (National Standards for Physics Education in Germany; KMK, 2004a). Therefore, it is necessary to create problem- and competence-orientated learning environments. The learning conditions should also offer opportunities for interaction between learners and teachers, for cooperative learning, and for a balanced relation between teacher´s instruction and students´ self-regulated learning processes (Reinmann-Rothmeier & Mandl, 1998).

The intervention study *Promoting students' learning competence based on the portfolio approach* is an attempt to realize these claims in school instruction using portfolios. The study is conducted at the University of Jena and funded by the German Research Foundation (DFG). The aim of the study is to test the effects of the portfolio concept in 8th grade classrooms in respect of students' self-regulation, learning competencies and performance. Four physics teachers and approximately N = 200 14-year-old-students from four secondary schools in Thuringia (Germany) participate in this study. In a quasi-experimental treatment-control-group design with pre-, post- and follow-up tests, the treatment class is taught in a student-centered and problem-oriented instructional setting (topic: electricity; duration: 26 lessons over three months; school-year: 2010/2011) that includes the application of a portfolio. The control class is taught the same topic by the same teacher in a teacher-centered instructional setting over the same period of time. In order to avoid transfer- and exercise effects regarding the method (portfolio) and the

content taught by the teacher, the same topic is taught in the treatment and control classes in the following way: In two of the four schools, the control class starts with electricity, and the treatment class follows. In the other two schools, instruction in the control class deals with the topic of electricity after the treatment class has been taught by the same teacher.

In order to help students gain awareness of and regulate their own learning process, the project focuses on the application of portfolios as working portfolios. The portfolio supports students in planning, monitoring, and reflecting on their learning process (Schmitz, Schmidt, Landmann, & Spiel, 2007). Therefore, the working unit in the treatment class consists of different exercises (both compulsory and optional) that are selected and carried out by students autonomously. Some exercises include the written documentation of and reflection on the working process according to the three phases of self-regulated learning mentioned above. In addition, to support communication about learning students regularly discuss the progress of their portfolio in small groups with their classmates. To help the fostering of communication, everyone gets written feedback from a classmate four times. All documents pertaining to the learning process (worksheets, planning, and reflection documents) are collected by the student him/herself.

The effectiveness of portfolio application is measured by standardized tests concerning (1) competencies of self-regulated learning (e.g., Gläser-Zikuda, Lindacher, & Fuß, 2006; following Wild & Schiefele, 1994), (2) ability in problem solving (PISA-Consortium Germany, 2008), (3) students' performance (self-constructed test), (4) learning motivation (Ryan & Deci, n.d.), (5) learning emotions (e.g., Gläser-Zikuda & Fuß, 2008; Pekrun, Goetz, Titz, & Perry, 2002), and (6) social competencies (e.g., Jerusalem, Drössler, Kleine et al., 2009). Furthermore, teachers report on their instructional methods and student interviews are analyzed in order to document the quality of portfolio implementation.

This intervention is conducted in all four schools, and we have already received the first positive feedback from students and teachers. The first results of the study are expected in autumn 2011.

The portfolio in teacher education

Teacher education may be seen as a multidimensional, dynamic process in which student, pre-service and in-service teachers acquire content knowledge, professional knowledge and skills, and professional dispositions. Professional development is an important topic for all phases of teacher education. It is required of teachers that they move from a simple to a more complex understanding of what teaching means and requires. This process of forming experiences, reflections, and self-evaluations may be substantially supported by the creation of a portfolio that encourages teachers to make use of metacognitive strategies. It has already been noted that this is way to become 'a reflective practitioner' (Schön, 1983).

Funded by the German 'Stifterverband', the Center of Teacher Education started a program at the University of Jena in 2010 called *From Teaching to Learning – and*

Back. The aim of this three-year project is the advanced development and empirical evaluation of the conceptualization and organization of the linkage of the three phases of teacher education. One part of the program focuses specifically on the implementation of a portfolio concept in all phases of teacher education, taking into account basic teaching competencies defined as *German Standards of Teacher Education* (educating, teaching, assessing, and innovating; KMK, 2004b).

With reference to the system of teacher education in Germany, a portfolio concept has been developed that includes all aspects and phases of teachers' professional development. In order to have the same conceptual basis in all phases, comparable parts are included in all three portfolio types. There is an additional focus on specific topics, contexts, and requirements of each professional phase. In the first phase, students are encouraged to reflect upon their theoretical knowledge with respect to their experiences in early teaching practice. In the second phase, pre-service teachers are invited to reflect upon their advanced experiences and activities within the context of the school with respect to their theoretical knowledge. Finally, in the third phase, in-service teachers are asked to reflect upon their practical routines and methods, as well as their own professional effectiveness. The teacher's personality is a further focus of the portfolio, but in a more distinctive manner than in the first phase of professional development.

Aside from the individual documentation and reflection within the portfolio, core elements of the portfolio concept applied in this program are the communication of practical experiences and routines, as well as the development of teacher expertise. During all three phases of teacher education, reflective discussion with other student teachers or colleagues takes place. In this way, the portfolio can be seen as a working portfolio or a developmental portfolio. In the third phase, the portfolio serves different purposes; it may serve for discussion with the principal, as with a showcase portfolio, for example. Furthermore, in an evaluation or an assessment portfolio supervisors can get an insight into the specific qualifications of a teacher. Both student teachers and experienced teachers are seen as learners who observe themselves, reflect upon their actual knowledge and competencies, and plan further steps based on individual goals. To gain a deeper insight into the potentials and limitations of the portfolio concept, the entire implementation process is evaluated formatively by questionnaires. In the 2011 summer semester approximately 200 university students are participating in this study. Besides the acceptance of the portfolio (including: SRQ-A of Ryan & Connell in the adapted version of Müller, Hanfstingel & Andreitz, 2007), the subjective value of the portfolio (Ziegelbauer & Voigt, in preparation), teaching competencies (content and pedagogical knowledge; cf. Shulman, 1985; methodological, social, and personal competencies; Ziegelbauer & Voigt, in preparation) and self-reflection competence (cf. Wild & Schiefele, 1994) are considered. The first results of this study are expected in autumn 2011 and will be used to develop a specific portfolio approach. The final version of the portfolio will be systematically tested and evaluated in all three phases of teacher education in Thuringia in 2012.

The teaching portfolio in higher education

Teaching portfolios are a result of an increase in quality management in higher education over the past ten years. Universities have developed qualification programs to optimize the qualifications of their staff. Standards for employment in teaching, too, are a subject of intensive discussion (Webler, 2008). As described above, teaching portfolios may be used for documentation of and reflection on self-regulated learning, as a working or developmental portfolio, for appointments of university teachers according to evaluation, as an assessment, and as a showcase portfolio.

The University of Jena founded the university project *LehreLernen* (www.lehrelernen.uni-jena.de/) (cf. Seidel & Johannes, 2008) to support academic teachers in their teaching competencies and experiences, and to identify relevant aspects of teaching. In this two-year certificate program – called *Advanced Teaching* – university teachers have the opportunity to qualify themselves systematically to teach in higher education. The program focuses on the training of self-regulation techniques for teaching (planning, acting, and reflection upon teaching) through coaching, by participating in different workshops, and last but not least by creating an individual teaching portfolio. Concerning the planning phase of self-regulated learning, all participants attend five didactical workshops on the topics of a) writing a teaching portfolio, b) planning, c) giving lectures, d) evaluating one's own teaching, and e) supervision and consultation on the lectures given.

In the didactical workshops, participants acquire knowledge about learning and teaching in higher education (pre-actional phase). One lecture given by each participant is video-recorded and evaluated by students (actional phase). The participants get individual feedback on their recordings in an individual consultation with experts, as well as in reflection groups with other participants (post-actional or reflecting phase). These reflection workshops highlight the process of reflection on individual teaching concepts as well as aspects of self-regulated learning. Above all, each participant is required to develop a teaching portfolio. In the first didactical workshop, participants are introduced to systematic strategies for the development of their teaching portfolio. Every reflection workshop also includes aspects of guided learning in real contexts aimed at the reflection of individual teaching approaches. The teaching portfolio in this project is used as a reflected collection of teaching elements, as with the program *From Teaching to Learning – and Back* (see Section b for more information).

The teaching portfolio may also be used for evaluation and assessment, or as a showcase portfolio, in the case of a job application. This kind of portfolio represents an approach to teaching assessment. In the *Advanced Teaching* certificate program, two perspectives on the teaching portfolio are of particular relevance: one focus is the individual characterization of one's own teaching strategies by video recording and feedback on one's own lectures, another the documentation of teaching competencies by the portfolio writer. As with the study on teacher education, the portfolio may be supportive to the 'reflective practitioner' in higher education (Schön, 1983).

To analyze how teaching portfolios are used in higher education, and how they influence the development of teaching competencies, a study (n=12) is conducted in the context of the *Advanced Teaching* certificate program. It is a single case study with time-series interrogation based on interviews and questionnaires. Based on a pre-post-design, three measurements with questionnaires are conducted to analyze participants' self-regulated learning processes as university teachers. The single case study involved only participants of the *Advanced Teaching* certificate program (n=12), while the questionnaires were completed by lecturers at the University of Jena who were not participants in any teaching qualification program (n=28). To measure self-regulated learning a questionnaire was applied focusing on teaching approach, motivation, teaching knowledge, and skills in planning, giving lectures, evaluating one's own work, and supervision and consultation regarding lectures given (Johannes, Fendler, Hoppert, & Seidel, 2010). It is assumed that the score differences between the first and the last two measurements may be characterized as a development in university teachers' self-regulated learning. In addition, interviews are conducted to describe the learning process of university teachers' regarding the development of teaching abilities. Another aim is to investigate their specific usage of the portfolio in this process. First results show that participants in the certificate program have a relatively high student-oriented teaching approach in the beginning. This group has also a higher motivation to teach in comparison with university teachers not participating in a certificate program. After one year, the teaching approach of participants in the certificate program is less student-oriented. At the same time, participants on the certificate program show a slightly higher level of skill in terms of planning and evaluating their own teaching competence (Fendler & Gläser-Zikuda, 2010). Final results are expected in spring 2012.

Discussion

In this paper, the portfolio approach is presented and discussed with respect to the enhancement of self-regulated learning in different educational contexts. In the portfolio study in physics education, the implementation of the usage of portfolios aims to enhance students' learning competencies as an important part of self-regulation. The portfolio is defined as a learning tool, but in addition, the learning environment, as well as the roles of learners and teachers, needs to change. To change these roles, in the portfolio study students are required to assume self-responsibility for their own learning for the whole teaching unit. One important aspect is the monitoring of the time needed for the teaching unit in the treatment and control classes, because this may have an effect on performance. Furthermore, the qualities of the learning environment and especially of the tasks have to be taken into account. Further covariates, such as students' and teachers' personalities, cognitive abilities, learning strategies and classroom climate, must be controlled.

In the teacher-education study, the implementation of a portfolio concept including specific teacher competencies focuses on support during teachers'

professionalization, based on continuous individual and discursive reflection. The portfolio is viewed as a learning tool (learning portfolio) but also fulfills the function of a presentation tool (showcase portfolio). One of the main questions is raised concerns whether the portfolio will be accepted by teacher students and teachers. Further to this, a positive effect on teachers' professional development is expected. But this needs to be investigated in further studies.

The study in higher education highlights the portfolio as an instrument for quality management. The main benefits given by teaching portfolios show a relationship between evaluation, self-regulated learning and teaching. The teaching portfolio may also be used for reflection on one's own teaching competencies. Therefore, it serves additionally as a learning tool. Individual cases will describe on an individual and process-oriented level whether and how university teachers reflect on their teaching. The first results illustrate that systematic qualification programs may have different and unexpected effects on the participants' teaching competence and motivation to teach. Further analyses are needed. But some first implications of this study may be seen with respect to post-doc-qualification programs, changes in the quality of university teaching, and the relation of research to teaching at university in general.

As all three studies point out, the application of portfolios may be seen as an example of a shift from teaching to learning. From this point of view, educational institutions have to be seen no longer primarily as places for the transfer of knowledge, but rather as well-prepared learning environments in which individual learning processes are supported while taking into account the individual as a whole.

The quality of reflection documented in a portfolio depends on the learner's personality, epistemology, individual goals and motives, as well as on conditions of the learning environment. In general, the establishing of reflective elements in education is a very demanding task. Reflective interaction and communication with other people involved in the education, such as classmates, peers, teachers, colleagues, headmasters and other individuals (parents, educators, school psychologists etc.), are assumed to be highly relevant. Finally, adequate portfolio types, a transparent and clearly structured portfolio format (with prompts), continuous support, and supervision are needed to support learners. First experiences from the studies presented in this contribution show the great importance of the continuous support of students, teacher students, schools and university teachers as they work to develop a portfolio.

Finally, systematical analyses are needed to clarify the individual, social and environmental conditions for and influences and effects of portfolios on learners' affective, cognitive and social variables. Different formats for the portfolio need to be tested, including open, less- or highly-structured instruments, paper-based, digital or web-based versions. The existing perception of the potentials of the portfolio needs to be systematically expanded with respect to different groups of learners, domains and institutions. Furthermore, it is of interest to see how implementation of these instruments may be transposed to different educational

settings and contexts, as described in this paper. The three studies are a first attempt in this direction.

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Contact information
Michaela Gläser-Zikuda
Jan Fendler
Julia Noack
Sascha Ziegelbauer
Institut für Erziehungswissenschaft
Lehrstuhl für Schulpädagogik und Didaktik
Friedrich-Schiller-Universität Jena
Am Planetarium 4
07737 Jena
Germany
michaela.glaeser-zikuda@uni-jena.de
Jan.Fendler@uni-jena.de
Julia.Noack.1@uni-jena.de
Sascha.Ziegelbauer@uni-jena.de

MEASURING THE SELF-EFFICACY OF IN-SERVICE TEACHERS IN SLOVAKIA[1]

PETER GAVORA

Comenius University, Bratislava

Abstract: *The paper describes the construct of teacher self-efficacy, which draws on Albert Bandura´s social-cognitive theory. Self-efficacy is defined as teacher judgement about teacher's capacities to bring about the desired outcomes of instruction. It has been proved in many studies that high self-efficacy positively affects pupil's motivation and learning. The process of adaptation of the Slovak version of Gibson's and Dembo´s Teacher Efficacy Scale (TES) is described in detail. The wording of scale items as used in our earlier research (Gavora 2009, 2010) has been altered to reflect the more internal/external orientation of TES dimensions rather than personal teaching efficacy/general teaching efficacy dimensions. The new version of the TES was factor-analysed to assess its construct validity, and reliability coefficients were calculated. A sample of 217 teachers in 5 regions of Slovakia filled in the TES. The data were categorized according to teachers´ years of practice, gender, and the level of school (primary/lower secondary). The findings are not dissimilar from those in North American and Western European studies showing that (1) an above-average level (as assessed theoretically) of perceived self-efficacy of teachers is a characteristic of the majority of in-service teachers, (2) general teaching efficacy scores are lower than those of personal teaching efficacy, (3) in-service teachers are superior to the pre-service teachers in our previous sample (Gavora, 2009, 2010) in terms of personal teaching efficacy but not in general teaching efficacy, and (4) likewise, female teachers are superior to male teachers in personal teaching efficacy while no statistical difference was detected in general teaching efficacy.*

Key words: *self-efficacy, teacher self-efficacy, in-service teachers, the Teacher Efficacy Scale (TES)*

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The Concept of Self-Efficacy

It is generally accepted that overt teacher behaviour in the classroom has an invisible complement – teacher beliefs. The latter constitute a very important determinant of the former, i.e., teachers' actions are influenced by their beliefs and assumptions about the school, teaching and pupils. A significant teacher characteristic within the area of beliefs and assumptions is *self-efficacy*.

The concept of self-efficacy was originally developed by Albert Bandura to constitute a part of his *social-cognitive theory*. Bandura defined self-efficacy as a belief in one's own ability to organize and perform a certain task (Bandura, 1997). As such, self-efficacy is a self-system that controls most personal activity, including appropriate use of professional knowledge and skills. Teacher self-efficacy is the belief that teachers have in their own abilities and skills as educators. Self-efficacy beliefs influence thought patterns and emotions, which, in turn, enable or inhibit actions.

> According to social-cognitive theory, teachers who do not expect to be successful with certain pupils are likely to put forth less effort in preparation and delivery of instruction, and to give up easily at the first sign of difficulty, even if they actually know of strategies that could assist these pupils if applied. Self-efficacy beliefs can therefore become self-fulfilling prophesies, validating beliefs either of capability or of incapacity. (Tschannen-Moran & Woolfolk Hoy, 2007)

According to Bandura's theory, self-efficacy has two components: *efficacy expectation* and *outcome expectancy***.** The former is the conviction that one has the ability, knowledge, and skills to perform successfully actions required to produce desired outcome(s). The latter represents a person's estimate of the likely consequences (impact) of performing a task at the self-expected level of performance. That is, outcome expectancy is the belief that a given behaviour or action will indeed lead to (an) expected outcome(s). To be successful, the teacher must have both high efficacy expectations and high outcome expectancy. If the teacher has the former but not the latter, it is unlikely that the teacher will be successful even if he/she is professionally well-qualified.

It should be stressed that self-efficacy judgements are examples of belief in one's own capabilities; they are not necessarily accurate assessments of these capabilities on the part of the teacher. In theory, if a teacher has good self-efficacy this may or may not coincide with his/her real teaching capabilities, and, ultimately, with his/her actions in the classroom. The actual relationship depends on the person and educational situation. However, as we shall show in the next section, it is not typical that good self-efficacy and ineffective teacher action should coincide: a strong sense of self-efficacy usually correlates positively with effective teacher action.

Relationship of self-efficacy to teacher behaviour and pupils' learning

The construct of teacher efficacy has been a subject of broad research for approximately three decades. Ever since the theory of self-efficacy was first introduced, attempts have been made to identify its empirical value, i.e., to assess how it functions in the everyday practice of teachers and its impact on pupils' learning. A great many research projects have accumulated facts about the effects of teacher self-efficacy in various school situations and environments. It has been proved that teachers' belief in their own abilities positively affects the actions and efforts of teachers, as well as motivation, styles of teaching, classroom management, pupils' learning, and other teacher characteristics.

Research has shown that teacher efficacy has positive effects on:

- teacher effort and persistence in the face of difficulties (Podell & Soodak, 1993; Gibson & Dembo, 1984);
- the implementing of new instructional practices (Evers, Brouwers, & Tomic, 2002);
- pupils' academic achievement and success (Ross, 1992; Caprara et al., 2006).

Teachers with high levels of self-efficacy:

- frequently experiment with new teaching methods;
- have a tendency to be less critical of their students;
- are usually more supportive, both instructionally and emotionally;
- typically work longer with problematic pupils;
- are usually more enthusiastic;
- usually are more committed to the profession than other teachers (Ashton & Webb, 1986; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998);
- deal with the needs of low-ability students (Ross & Gray, 2006);
- exhibit greater levels of planning (Allinder, 1994);
- tend to be more open to new ideas (Cousins & Walker, 2000);
- use less teacher-directed whole-class instruction (Ashton & Webb, 1986);
- adopt a more humanistic approach to the classroom (Woolfolk, Rosoff, & Hoy, 1990).

In summary, a strong sense of self-efficacy in a teacher is a crucial factor in instruction. A teacher's personal beliefs and attitude relate to teacher success and use of effective teaching strategies, and they affect pupil performance. Effective teachers display behaviours which are typical for quality instruction. A highly effective teacher does not only believe that he/she can influence actions but also actually demonstrates this belief through his/her behaviour. To put it in Bandura´s diction, teacher belief mediates teacher action.

History of teacher self-efficacy measurement

Self-efficacy research has a thirty-year history. Its beginnings are very well documented in several review papers (e. g., Tschannen-Moran et al., 1998; Woolfolk Hoy& Spero, 2005). To outline the history, we should start with two Rand Corporation projects which evaluated innovative educational programs funded by the US federal government (Armor et al., 1976; Berman et al., 1977). In these studies, teachers' level of efficacy was determined in a questionnaire by computing a total score for their responses to two 5-point Likert scale items:

> (a) When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.
> (b) If I try really hard, I can get through to even the most difficult or unmotivated students.

The theoretical basis for these items was Julian Rotter's (1966) *locus of control* theory. Teacher efficacy was seen as the extent to which teachers believed that factors which they could control had a larger impact on teaching outcomes than beliefs that the environment held greater power. Thus, the first-cited questionnaire item reflected an *external control* orientation, whereas the second one reflected an *internal control* orientation, emphasizing the power of the teacher to teach students regardless of environmental conditions.

To the great surprise of researchers, the efficacy items proved to be strongly related to pupil achievement, teacher behaviours which fostered this achievement, and teacher willingness to adopt innovative instructional proposals (Berman et al., 1977). As we shall see, the locus of control theory influenced developments in further research in teacher self-efficacy, and again surprisingly, caused some methodological confusion.

The second part of the story of empirical research in self-efficacy is linked to Bandura´s (1997) *social cognitive theory*. To recapitulate, the concept of self-efficacy is considered by Bandura as the primary motivational force behind an individual's actions. As defined by the author (Bandura, 1977, s. 79), self-efficacy is "the conviction that one can successfully execute the behaviour required to produce outcomes". Based on his theory, two American authors, Gibson and Dembo (1984), developed a questionnaire called *The Teacher Efficacy Scale* (TES) which was intended to measure this construct. They designed a 30-item scale which when factor-analysed, yielded two dimensions. Though the dimensions were expansions of the RAND locus of control items, Gibson and Dembo interpreted them as faithful to Bandura´s self-efficacy theory.

Gibson and Dembo labelled their first dimension personal teaching efficacy and assumed that this dimension assessed self-efficacy. *Personal teaching efficacy* (PTE) represents a teacher's belief that he/she possesses the skills and abilities to facilitate student learning. Examples of items:

- When the grades of a pupil improve, it is because I have found a way to teach him/her.
- If a pupil did not remember the information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.

The second factor, teaching efficacy, was assumed to capture outcome expectancy. *Teaching efficacy* represents the belief that teaching (as an organisational form of education) can affect pupils positively, even in the light of external factors or conditions such as the low motivation or poor home environment of a pupil. Examples of items:

- The amount the pupil can learn is primarily related to family background.
- If parents do more for their children, I can do more.

Teaching efficacy was later renamed *general teaching efficacy* (GTE) by Woolfolk and Hoy (1990) to be better distinguished from personal teaching efficacy (PTE).

General teaching efficacy is different from personal teaching efficacy. While PTE focuses on teachers´ beliefs that they can complete tasks to initiate learning, GTE is the belief that teaching itself can initiate learning. Gibson and Dembo (1984) describe this as "the belief that any teacher's ability to bring about change is limited by factors external to the teacher". The distinction between the two types of efficacy is important. While it is one thing to believe in one's ability to teach, it is another to believe in the power of teaching. A teacher can have high personal teaching efficacy and low general teaching efficacy, and vice versa. However, as Bandura (1997) points out, PTE is a better predictor of teacher actions than outcome expectancy because the outcomes that teachers anticipate depend largely on their judgement of how they will be able to perform in a given situation.

The first version of the TES had 53 items. After factor analysis was performed, the instrument was reduced to 30 items only. Later the authors developed a short form with only 16 items but better psychometric qualities. Still later, other researchers developed a 10-item version that was found to have psychometric qualities roughly equivalent to those of the 16-item version. In the study by Gibson and Dembo (1984) the factors PTE and GTE explained 28.8% of the total variance, which is less than expected in an ideal research instrument. Other research studies produced similar – i.e., rather low – total explained variance.

The TES has been used in various forms in diverse school environments and types of schools; it has been administered to in-service teachers of a variety of school subjects, and it has also been used with pre-service teachers. In principle, the research supports the construct validity of the TES, i.e., it proves the existence of two dimensions, PTE and GTE, and their relative independence as documented by low correlation between them (usually below 0.20). On the other hand, a couple of studies conducted in a variety of environments showed that some questionnaire items were not consistent with the original dimensions, or that the factor structure of the questionnaire was different from the original assumption. In some studies factor

analysis produced one factor only (e. g., Deemer & Minke, 1999), or three factors (e. g., Denzine, Cooney, & McKenzie, 2005), or even four factors (e. g., Brouwers & Tomic, 2003). Some authors interpreted the factors of the results in a way different from Gibson and Dembo's (1984). This is true especially of GTE, which suffers from theoretical inconsistency, and in some situations yielded fluctuating data.

Several authors (Woolfolk & Hoy, 1990; Soodak & Podell, 1996) challenged the original conception of GTE, which Gibson and Dembo (1984) maintained was in agreement with Bandura´s outcome expectancy. They found that GTE was different from Bandura´s notion of outcome expectancy because it concerned teachers' belief that they could overcome external influences, and it did not concern the outcomes of their behaviours. Consequently, new models of self-efficacy were proposed. Soodak and Podell (1996) postulated a 3-factor model comprising (a) personal efficacy, (b) outcome efficacy, and (c) teacher efficacy. Personal efficacy pertains to a teacher's belief that he/she possesses teaching skills, while outcome efficacy refers to the belief that, when teachers implement these skills, they lead to desirable pupil outcomes. The third factor, teacher efficacy, is the belief that teaching can overcome the effects of outside influences.

Some authors (Guskey & Passaro, 1994; Deemer & Minke, 1999; Brouwers & Tomic, 2003) point out that the problem with GTE rests in the wording of its items. They have found that the items in PTE are worded in *the first person*, (*When a pupil gets better grades, it is usually because I have found better ways of teaching that pupil*), while items in GTE refer to a third person – *a teacher* (*A teacher is very limited in what he/she can achieve because it is the home environment that shapes a pupil's motivation*.). Furthermore they note that the majority of items in GTE are formulated in negative terms (*The hours in my class have little influence on students compared to the influence of the home environment*), while items in PTE are mostly worded in positive terms (*When a pupil does better than usual, often it is because I exert a little extra effort*). These are important objections to the conceptualisation of the original TES. However, subsequent research has not proved that either "I" versus "teacher", or positive versus negative orientation items play a decisive role in factor analysis of TES data (Guskey & Passaro, 1994; Deemer & Minke, 1999).

To sum up the research situation, the TES is based on an excellent construct – self-efficacy – but the instrument by which it is measured shows some instability and sometimes produces inconsistent results. This situation issues a challenge to researchers to discuss these inconsistencies and, in turn, improve the psychometric quality of the TES. The research reported in this paper represents a contribution to these efforts.

Other instruments

Self-efficacy was researched in a variety of educational and cultural settings. For these reasons the authors developed specific instruments which were tailored for particular purposes. Below is a list of some of them. We shall refer to some of them in subsequent sections of this paper.

- Ohio State Teacher Efficacy Scale – OSTES, sometimes labelled TSES (Tschannen-Moran & Woolfolk Hoy, 2001) – concentrates on three kinds of efficacy: (a) for instructional strategies, (b) for classroom management, (c) for student engagement
- Bandura Teacher Self-Efficacy Scale – a 28-item scale which has six subscales measuring instructional efficacy (Bandura, 2006)
- Science Teaching Efficacy Belief Instrument – STEBI (Riggs & Enochs, 1990)
- Mathematics Teaching Efficacy Belief Instrument – MTEBI (Enochs, Smith, & Huinker, 2000)
- Teacher Self-Efficacy in Behaviour Management and Discipline Scale – SEBM (Emmer & Hickman, 1991)
- Teachers' Efficacy Beliefs System-Self – TEBS-Self (Dellinger et al., 2008) – intended to distinguish between efficacy and self-efficacy in the classroom context
- Culturally Responsive Teaching Self-Efficacy Scale – CRTSE (Siwatu, 2007) – intended to reflect cultural aspects of instruction
- Teacher Interpersonal Self-Efficacy Scale (Brouwers & Tomic) – consists of three subscales: (a) teacher-perceived self-efficacy in managing student behaviour in the classroom, (b) teacher-perceived self-efficacy in eliciting support from colleagues, (c) teacher-perceived self-efficacy in eliciting support from school principals
- Norwegian Teacher Self-Efficacy Scale – NTSES (Skaalvik & Skaalvik, 2010) – has 24 items in 6 dimensions
- Generalized Self-Efficacy Scale (Schwarzer & Schmitz, 2004) – a ten-item scale of German origin comprising four areas: (a) job accomplishment, (b) skill development on the job, (c) social interaction with pupils, parents and colleagues, (d) coping with job stress
- Collective Efficacy Scale (Goddard, 2002) – designed to measure the perceived collective efficacy of teachers
- Teacher Efficacy for Moral Education – TEME (Narvaez et al., 2008)
- Character Efficacy Belief Instrument – CEEBI (Milson, 2003)

This review shows that individual authors expanded the original concept of teacher self-efficacy, adopted it to specific conditions and environments, and added new dimensions to catch broader teacher roles and positions. Moreover, many of the instruments were used in studies conducted not only in the country of their origin but also in other nations of Europe and Asia. This practice produced important data for cross-country comparisons of the functioning of teacher self-efficacy, of both in-service and pre-service teachers.

Research Purposes

This research had several purposes. First, it was our aim to adapt the TES for application to the environment of Slovak education and to gather data on the self-

efficacy of Slovak teachers. As no data on these teacher characteristics in Slovakia existed already, one purpose of our research was the initial effort to obtain these. In addition, we wanted to explore the relationships of the TES to teacher gender, level of school (primary or lower secondary) and years of practice in a sample of Slovak teachers. Furthermore, we wanted to examine empirically the construct of GTE as concerned its properties of internality/externality versus efficacy expectations/ outcome influences.

The sample

The sample consisted of 217 teachers from 5 regions of Slovakia. The average of their years of practice was 18.1 years (SD 11.1; range was 42 years). Teachers filled in the Slovak version of the TES with additional questions attached for the gathering of demographic information. The TES was administered by headteachers, staff of district education offices, and the author. Teachers filled in the instrument anonymously and on a voluntary basis. The structure of the sample is given in Table 1.

Table 1
The structure of the research sample

category		n	%
school level	primary (grades 1–4)	27	12.4
	lower-secondary (grades 5–9)	179	82.0
	ns	11	5.0
gender	female	161	74.2
	male	40	18.4
	ns	16	7.3

Adaptation of the TES

In this study we used the TES as the research instrument. We opted for this measure even though, as explained above, we were aware of its shortcomings, the reason being that it is the instrument used most frequently to measure the self-efficacy of teachers and is considered to be a standard instrument in efficacy investigations. As it has been used in many countries, it would be possible to compare the data from Slovakia with those collected in other locations. In addition, we wanted to contribute to an improvement in the conceptualisation of the TES, in particular by looking closely at its confounding properties related to internality-externality versus efficacy expectations/outcome expectancy.

The first Slovak version of the TES was used in research applied to pre-service teachers in Bratislava (Gavora, 2009, 2010). For this purpose, the original, 30-item TES had been translated into Slovak by an experienced translator who rendered a substantive but not entirely literal version of the items; the items were adapted to reflect the Slovak educational environment. The translated version was then

reviewed by several university-based education professionals. Subsequently, some item wordings were modified to improve comprehensibility. As in the original version, we used two dimensions, PTE and GTE, and 6-point Likert scales from "strongly disagree" to "strongly agree". For both dimensions, the higher the score, the better the sense of teacher efficacy. We factor-analysed both the 16- and the 10-item TES; the short version provided somewhat better validity and reliability.

In the research reported in this study we used the Slovak 16-item version from the previous research[2], which we extended by adding three items to the GTE dimension with the hope of increasing its reliability. Another modification was the rewording of items in the GTE dimension. Following the procedure of Guskey and Passaro (1994) and Deemer and Minke (1999), all original items that referred to "a teacher" were converted to the first person singular ("I"). PTE items were originally worded in the first person singular and they remained unchanged in our instrument. With this arrangement we wanted to test the hypothesis that if GTE is worded in the first person singular, in the factor analysis only one factor will be extracted. This would be consistent with Rotter´s (1966) locus of control theory on which the TES was said to be constructed by Gibson and Dembo. However, Rotter conceptualised locus of control as a bi-polar continuum of internality-externality, not as two distinct dimensions. In accord with this theory we hypothesised that both the original PTE items and the reworded GTE items will load on one factor. In the case that this did not happen and we received two factors that were low-correlated, we would have a solution that the TES measured two dimensions and its conceptualisation, as described above, was not quite clear.

Instrument validation

Before the analysis the scores of six items which had negative wordings (e.g., *Even if I have excellent knowledge and skills, it has little influence on pupils' learning*) were re-coded to be in line with positively worded items, i.e., the score 1 was re-coded to 6, the score 2 was re-coded to 5, etc.

To examine the factor structure of the TES, a principal component factor analysis was conducted with varimax rotation. A cut-off load of 0.35 was used to identify items contributing to a given factor. Two criteria – Kaiser's criterion of eigenvalues greater than one rule and the scree test – were used to determine the number of factors to be retained. Kaiser's criteria showed 5 factors; the scree test indicated two or five factors. With five factors the total explained variance was 56.9%, which was a good result. Unfortunately, the loadings were difficult to interpret – some items were loaded on several factors, and the factor structure was unclear. Therefore, the option with five factors was refused. Likewise, solutions with four and three factors were not ideal. The best solution was with two factors, which yielded a total explained variance of 37.6%. For comparison: the overall total variance in Gibson

2 The reason for returning to the 16-item version of the TES rather than using the 10-item version was simple: we wanted to begin validation anew. The 10-item version was the result of a validation procedure with pre-service teachers; in this research the sample is given by in-service teachers.

and Dembo's (1984) TES validation study was only 28.8%, which is considered less than a criterion for a good instrument. The usual standard for a good instrument is over 50% of overall explained variance. However, in the majority of studies the TES showed smaller total explained variance than the authors would have wished.

The two factors extracted showed a structure identical with the original PTE and GTE dimensions. With this solution three items had to be eliminated, two because they were crossloaded, the third because it was loaded below the cut-off load of 0.35. All of them belonged in the GTE dimension. Thus the final version of the instrument had 16 items, 10 for PTE and 6 for GTE.[3] We found a small correlation between the two dimensions (0.18), which shows that they are independent. The internal consistencies (Cronbach alpha) of the dimensions were 0.81 and 0.61 respectively. While the PTE reliability is satisfactory, the GTE reliability is only moderate, which may be caused by the small number of items retained in this dimension or by the low homogeneity of items. (The reliabilities of the two factors in Gibson and Dembo's (1984) TES validation study were 0.78 and 0.75 respectively.)

To sum up the results, the validation of the Slovak TES gave two dimensions which are consistent with the original structure of the TES as proposed by Gibson and Dembo (1984). The conversion of GTE items from "teacher" reference to "I" reference did not prove efficient, thus the hypothesis of internality-externality orientation was disproved. With these validation results we can proceed to a presentation of descriptive statistics.

Results

The TES is scored on a 6-point scale; the higher the score, the better the self-efficacy. The basic descriptive statistics are given in Table 2. The mean score of PTE is higher than that of GTE, which means that the teachers in this sample have a greater belief in their ability to facilitate learning in pupils than in their power to overcome external factors of instruction such as low motivation or the poor home environment of pupils. This finding is in agreement with similar studies on the self-efficacy of both in-service and pre-service teachers, which consistently show higher scores in TES than in GTE. Both dimensions have a theoretical midpoint score of 3.5. As shown in Table 2, overall item means exceeded the midpoint for both dimensions, which indicates that the overall self-efficacy of teachers in this sample is quite good.

The minimum score in PTE was 2.29 (one teacher only). In this sample 33 teachers (17%) scored one standard deviation below the mean in PTE. On the other hand, there were 49 teachers (25.2%) who scored one standard deviation above the mean.

As concerns the minimum score in GTE, two teachers scored only 1.67; the low level of belief they show in their teaching abilities and skills is disappointing. There were 28 teachers (14.4%) in this sample who scored one standard deviation

3 The Slovak version of the TES is available from the author on request.

below the mean in GTE. On the other hand, there were 22 teachers (11.3%) who scored one standard deviation above the mean. The range between minimum and maximum scores was much wider in GTE than in PTE.

Table 2
Scores on the Teacher Efficacy Scale (TES)

Dimensions	valid n	mean	minimum	maximum	range	SD
personal teaching efficacy	194	4.47	2.90	5.80	2.90	0.63
general teaching efficacy	195	3.74	1.67	5.67	4.00	0.79

SD = standard deviation

As we had at our disposal the TES scores of Slovak pre-service teachers from our previous research project (Gavora, 2009, 2010), we were able to compare these with the scores of in-service teachers in this sample. The pre-service teachers were students in Years 2 through 5 at the Faculty of Education in Bratislava (n=135). Table 3 shows that in-service teachers outperformed pre-service teachers in both PTE and GTE. The difference between PTE and GTE scores in pre-service teachers is somewhat higher than in in-service teachers. This finding is in agreement with those of many studies of in- and pre-service teacher self-efficacy, which show higher scores in both PTE and GTE in in-service teachers when compared with pre-service teachers.

Table 3
Scores of in-service and pre-service teachers on the Teacher Efficacy Scale (TES)

	in-service teachers (this sample)		pre-service teachers (2009, 2010)	
Dimensions	mean	SD	mean	SD
personal teaching efficacy	4.47	0.63	4.22	0.73
general teaching efficacy	3.74	0.79	3.69	0.87

SD = standard deviation

In further analysis we divided the in-service sample into two subsamples according to *years of teaching*. One subsample consisted of teachers with 1–5 years of practice, the other of those with above 5 years of teaching practice. Table 4 shows that in PTE the teachers with above 5 years of practice scored significantly higher than the subsample of teachers with 1–5 years of practice. In the GTE dimensions the scores were almost identical. It is interesting to note that the subsample of teachers with 1–5 years of practice scored very much like pre-service teachers in our 2009 and 2010 studies. Though the sample of novice teachers was small, which could affect the scores, this result was expected because teachers with few years of practice are less experienced than older teachers. Similar findings were obtained by Soodak and Podell (1996) when they used a modified version of the TES and by Tschannen-Moran and Woolfolk Hoy when they used the TSES. Tschannen-

Moran and Woolfolk Hoy found somewhat lower mean self-efficacy belief among novices (teachers with 1–3 years of teaching practice) than among career teachers. They concluded: "This lower assessment (of novice teachers) of their teaching capabilities is not surprising given the relative inexperience of these teachers. It is also possible that teachers who start their careers with low self-efficacy either tend to find better instructional strategies to improve their teaching performance over time, thus increasing their sense of efficacy, or, if they do not, leave the profession."

Table 4
Scores of teachers on the Teacher Efficacy Scale (TES) according to years of teaching

		1–5 years		above 5 years		
dimensions	n	mean	SD	mean	SD	signif.
personal teaching efficacy	32	4.21	0.70	4.52	0.61	$p < 0.025$
general teaching efficacy	156	3.72	0.85	3.75	0.78	$p > 0.10$

SD= standard deviation

Next we explored differences in self-efficacy between *female and male teachers* (Table 5). In both genders the scores in PTE were higher than those in the GTE dimension, which is consistent with the results presented above. Female teachers scored higher than male in both dimensions, but only differences in PTE were statistically significant. Higher scores by female teachers in self-efficacy instruments, and specifically in the TES dimension, is a frequent finding in literature. Probably the exception to this is in science teaching, which Riggs (1991) characterises as a male domain. In his study, in which the STEBI instrument was used, both pre-service and in-service men have significantly higher scores than women in efficacy belief, but this is not the case in outcome expectancy. In a Turkish sample (Azar, 2009) that used STEBS – with pre-service science teachers, however – no differences were identified between genders. Ross et al. (1996, p. 389) conjecture that women are more satisfied with their profession and thus develop a high sense of efficacy. Furthermore, they speculate that women teachers "are more in tune with the dominant ideology of schools". However, results sometimes vary. Based on their findings with the TSES instrument Tschannen-Moran and Woolfolk Hoy (2007) claim that demographic variables such as race and gender were not found to be systematically related to the self-efficacy beliefs of either novice or career teachers. The authors probably refer to the US environment; other environments may differ in this regard. For instance, Kiviet (2006) in South Africa, who used STEBI, found significant differences in self-efficacy between rural and urban school teachers.

Table 5
Scores on the Teacher Efficacy Scale (TES) according to gender

dimensions	female		male		signif.
	mean	SD	mean	SD	
personal teaching efficacy	4.52	0.62	4.27	0.60	$p < 0.05$
general teaching efficacy	3.77	0.84	3.60	0.69	$p > 0.10$

Finally in this research we looked at the self-efficacy of teachers at different school levels. For this purpose we divided the sample into two subsamples. One consisted of primary teachers (grades 1–4), the other of lower-secondary teachers (grades 5–9). As Table 6 indicates, almost identical PTE scores were recorded in both subgroups and slightly higher GTE scores in the lower-secondary teachers subgroup than in the primary teachers subgroup, although this difference is not statistically significant. The primary-school teacher in Slovakia is a generalist teacher, whereas the lower-secondary teacher specialises in one or two school subjects. We had hypothetised that this could cause differences in favour of primary-school teachers, but this was proved wrong.

Table 6
Scores on the Teacher Efficacy Scale (TES) according to level of school

dimensions	primary		lower-secondary		signif.
	mean	SD	mean	SD	
personal teaching efficacy	4.46	0.62	4.45	0.60	$p > 0.10$
general teaching efficacy	3.70	0.77	3.94	0.77	$p > 0.10$

Discussion

The findings gathered in this study are not dissimilar from North American and Western European studies showing that (1) an above-average level of perceived teacher self-efficacy is a characteristic of the majority of highly qualified in-service teachers, (2) GTE scores are worse than PTE scores, (3) in-service teachers with above 5 years of teaching experience are superior to pre-service teachers in PTE, and (4) female teachers are superior to male teachers likewise in PTE.

This research was based on an investigation performed by questionnaire, as were all the sources of literature we have referred to in this article. The self-rating of respondents has been the prevailing method in self-efficacy research since its very beginning. Such an investigation is relatively easy to administer, as it can cover a large sample and quantitative data analysis can be conducted routinely with standard software. However, questionnaire research also has significant drawbacks: it confines respondents to items prepared ahead, thus not permitting them to answer beyond the boundaries of the researcher's frame structure.

There is only a limited amount of research on teacher self-efficacy based on *qualitative methodology*. One of the few examples of such research is a study by Charalambous et al. (2004) in Cyprus. Using the constant comparative method with a small sample of pre-service teachers, they traced factors which affected the development of their self-efficacy beliefs in the course of fieldwork. Apart from being qualitative, this study was also longitudinal; the researchers interviewed the participants three times over a longer period. Such a research design produces different data and makes it possible to view teacher self-efficacy from different perspectives. In this research, data were obtained for how the self-efficacy of

pre-service teachers was affected during their own teaching and in interactions with mentors, tutors, and peers. Rather than providing a generalised picture, the researchers presented individual testimonies of how the participants overcame their initial concerns and uncertainties as they gained stronger self-efficacy beliefs.

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Contact information
Peter Gavora
Faculty of Education
Comenius University
Račianska 59, 813 34, Bratislava,
Slovakia
peter.gavora@fedu.uniba.sk

ON THE NATURE OF EXPERT TEACHER KNOWLEDGE[1]

MICHAELA PÍŠOVÁ, TOMÁŠ JANÍK

Masaryk University, Brno

Abstract: *The paper addresses the role of knowledge as one of the sources of teaching expertise. More specifically, it focuses on the phenomenon of theory-practice gap, on the role of theoretical or academic research-based knowledge and teacher-based practical experiential knowledge. Tensions between theoretical and practical knowledge (epistémé and phronésis), the need for linking them and implications for teachers´ journeys towards expertise are highlighted.*

Key words: *teacher professionalisation, expertise in teaching, nature of expert teacher knowledge, tensions between theoretical and practical knowledge – epistémé and phronésis, knowledge integration and flexibility*

> *"... teachers, for many social and political reasons, have been afforded second-class status while being given first class responsibilities."* (Welker, 1991, p. 20)

Introduction

The above quotation reflects an ongoing discussion on the social prestige and recognition of teachers and teaching which is marked by never-ending lay attempts to diminish its status, at least in the Czech Republic. Calls to raise the quality of education are included in political manifestos. At the same time, however, the same representatives of educational policy talk about the lowering of teacher qualifications to a bachelor's degree, about opening up the profession to

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laymen with practical experience in other fields of human endeavour through the provision of short courses in pedagogy, etc. In the last twenty years this attitude to the teaching profession has become something of a pattern in the Czech Republic. In this sense, rather ironically, along the road to a "knowledge society" teachers have become an endangered species. Therefore, our text aims to support the struggle for the professionalisation of teachers and towards its recognition as a fully-fledged profession whose role is crucial for further social development.

Professionalisation is closely linked to the image of a profession's practitioners as experts, which has become prominent since the end of the twentieth century in professions that include the teaching profession. Teaching in general and expertise in teaching are complex multidimensional issues. Moral and ethical aspects of teaching are acknowledged as being at its core, whether we call these a mission (Korthagen, 2004; Korthagen & Vasalos, 2005) or refer along with Day (2005; Day et al., 2007) to a "passion for teaching". A passion for teaching, however, is a broader concept. It also encompasses professional identity, commitment, emotional (e.g., Hargreaves, 1998; Day & Leitch, 2001) and volative (Van Eekelen et al., 2006) dimensions of teacher professionalism, and, last but not least, its social dimension (Boshuizen, Bromme, & Gruber, 2004, p. 6). Though the focus of our further discussion is on the cognitive dimension of teaching, it should be emphasised that we perceive this as closely linked or rather intertwined with all the above aspects of teacher professionalism.

The study of expertise has a very long tradition – an interest in excellence and superior performance goes back to the very beginnings of Western civilisation (Ericsson, 2006). Serious academic attempts to capture the essence of expert performances and the nature of expertise, however, date back only to the 19th century. The "golden era" of research in expertise started in the 1960s with the translation into English of the pioneering study of expertise in chess players by de Groot (for more details see Feltovich, Prietula, & Ericsson 2006). Cognitive psychology highlighted complex relationships between what people do and what they know and believe.

In teaching, the key point in the emergence of teacher cognition research came in the mid 1970s. Almost simultaneously, two high-profile research reports, one from the National Institutes of Education in the U.S.A. (NIE, 1975) and the other from the Social Sciences Research Council in England (Sutcliffe, 1977) argued for an understanding of teaching through the lens of teacher knowledge and cognitive processes (Freeman, 2002). As research moved from investigations of teacher behaviour and its influence on learners´ achievement (process – product paradigm) to considerations of teacher cognition, in the first generation predominantly of the decision-making processes, questions concerning teacher knowledge and its role in these processes gained importance. From our perspective of teacher educators and researchers, we find issues related to what teachers know, the nature of their knowledge, how the knowledge originates and is acquired, and how it is stored and retrieved in classroom practice, central to the work of all who are concerned with initial and further/continuing teacher education (cf. Grossman, 1995).

It should be noted that there is an obvious parallel between interest in teachers´ knowledge and the teacher professionalisation movement: evidence of an established knowledge base necessary for the work of professionals is considered a hallmark of a profession. Thus, a focus on the knowledge dimension of teaching is motivated by political as well as academic and practical concerns (Shulman, 1987; Bromme & Tillema, 1995; Grossman, 1995; Norris, 2000, etc.).

In our paper we address the role of knowledge as one of the sources of teaching expertise. More specifically, the paper focuses on the phenomenon of theory-practice gap, on the role of theoretical or academic research-based knowledge and teacher-based practical experiential knowledge. The relationship of theory and practice in teacher education is reflected in most European countries by increasing academisation (university-based teacher education) and, at the same time, by professionalisation (accent on domain specific experience; Bromme & Tillema, 1995; Kansanen, in this issue). Tensions between theoretical and practical knowledge (epistémé and phronésis), the need for linking them and consequences for teacher education and career support of teachers on their journey towards expertise are highlighted.

Expert

A discussion of the nature of expert teacher knowledge in the context of theory and practice takes us back to the questions: Who is an expert? and What is expertise? Wittgenstein once commented that for the major ideas of any age, precise definitions are difficult, if not impossible, to arrive at (Welker, 1991, p. 22). Understanding and discourse in the field are hampered by the fact that over time they receive attention from a range of disciplines in their paradigmatic plurality. The expert approach – perhaps the most influential current in cognitive psychology, which culminated in the publication of a first handbook, edited by Ericsson et al. (2006) – provides the following definitions (Ericsson et al., 2006, p. 3):

- *expertise* is perceived as "the characteristics, skills and knowledge that distinguish experts from novices and less experienced people"
- these characteristics, skills and knowledge underpin "superior reproducible performances of representative tasks", i.e. *expert performances*
- an *expert*, then, is "someone widely recognized as a reliable source of knowledge, technique, or skill whose judgment is accorded authority and status by the public or his or her peers. Experts have prolonged or intense experience through practice and education in a particular field" (Wikipedia, 2005, cited in Ericsson, 2006, p. 3)

The two major orientations in cognitive psychology, called by Chi (2006, p. 22) the absolute approach (and which studies exceptional individuals) and the relative approach (i.e. a comparison of experts and novices) have yielded a knowledge of well-known characteristics of experts which are considered generalisable across

domains: superior memory for information in their domain, better awareness of what they do and do not know, greater pattern recognition, faster and more accurate solutions, and deeper, more highly structured knowledge (Lajoie, 2003; cf. Glaser & Chi, 1988; Eraut, 1994; Chi, 2006, etc.).[2]

Regarding studies in expertise by cognitive psychology, however, a reservation may be expressed in that these expert studies based on top-performance research have used very diverse groups of subjects, from chess players to waiters, from doctors to taxi drivers, etc. In other words, the domain and type of performance were considered irrelevant, or, more precisely, the assumption was that "any coherent set of tasks and problems that is amenable to objective performance measurement ... can constitute a domain of expertise" (Lewandovski et al., 2007, p. 84, quoting Ericsson, 1996). Such a perception of expertise has been criticised on the basis of the argument that expertise is exclusively linked to professionals, i.e. in our understanding to people who are a) trained, b) work for the benefit of society, and c) who are admitted to the profession by a body that regulates membership. Bromme and Tillema (1995, p. 264), for instance, argue that expert research "overlooks the fact that expert activity is mainly professional activity, and that the information processed in this course belongs mainly to the culture of the respective profession". A similar position is assumed by Tynjälä et al. (1997), Hatano and Oura (2003) and Welker (1991, p. 22), who note that expertise as a social phenomenon also "refers to the emergence of the public perception that such knowledge is the exclusive domain of specially trained and licensed practitioners".

Approaches of social theory to expertise stress the importance of context in the processes of becoming an expert: professional development towards expertise includes enculturation into professional culture. Enculturation is understood here both as an internal process, i.e. the acquisition of knowledge, skills, attitudes and values of the professional community, and as an external process of acceptance and legitimisation of the individual by the community (Boshuizen, Bromme, & Gruber, 2004, p. 6). It follows that the processes for gaining expertise are also of a socioemotional and sociocultural nature (Hatano & Oura, 2003, p. 26). In terms of thought processes, researches have referred to the ´positionality of knowing´, to the reflection of social identity by thought processes (Freeman, 2002, p. 9). To summarize, emphasis is placed on the concept of *expert* as an outstanding educated professional, on expertise as the highest quality of professional performance.

2 Much more has been written about ways in which experts excel. Chi (2006, pp. 24–27), however, warns that an equally important list might be drawn for issues in which experts fall short. In addition to domain and context limitations of their expertise they include the dangers of experts being overly confident and thus miscalibrating their capabilities, of glossing over the apparent surface structures and overlooking details, and of inaccurate judgment of novice performance which may lead to faulty prediction and inaccurate advice. Last but not least, experts sometimes have more trouble adapting to changes in problems or environment than even novices; in other words, they may be considered inflexible. Hatano and Inagaki (1986) address the issue of experts´ flexibility in their theory of adaptive vs. routine expertise, claiming that adaptive experts have developed strategies to balance their innovativeness and effectiveness of their performance. Similarly, a list of fallacies in thinking is formulated by Sternberg (2003. p. 7): the fallacies of unrealistic optimism, egocentrism, omniscience, omnipotence, and invulnerability.

Professional expertise then builds not only on the individual knowledge of the professional, but also on the collective knowledge of the given profession.

Expert Teacher

Amongst the domains of professional expertise common patterns as well as differences can be observed. There are substantial variations in professional cultures and their languages which are rooted in their vocations and the underlying theoretical assumptions. This may lead to different links between theory and practice. In what way, then, do the findings of general research on expertise in professions inform us about expertise in teaching and about the role of knowledge as a constitutive element of teacher expertise?

The underlying and crucial question in research on expert teachers is, of course, how we define and identify an expert teacher. Identification of experts in professions in general and in teaching specifically poses a true challenge. In a discussion on common criteria for identifying expert teachers, Tsui (2005, pp. 170–171) notes "cultural differences in perceptions of what constitutes expertise in teaching" and expresses doubts about "whether it is at all possible or even meaningful to establish criteria which could be applied across cultures".

As no set of objective criteria has yet been set, it may be useful to refer to a study conducted by Palmer et al. (2005) in which the authors examined 27 studies from the perspective of the marker variables used to identify expert teachers and found out that these included:

A. *Years of experience in the profession*: the most frequent requirement was between 5 and 10 years of practice (further in the discussion the authors strongly recommend that context, too, is taken into consideration and they require at least 3 years in the same instructional context).
B. *Professional or social group membership* (e.g., status as a cooperating or mentor teacher etc.). Some other sources (e.g., Tsui, 2005, p. 169) tend to talk in this sense about nominations or recommendations from school administrators, social recognition, etc.
C. *Performance criteria:* either normative (5 studies), criterion-based (9 studies) or a mixture of the two (2 studies).
D. *Other general criteria* (usually based on literature on expertise, e.g., Berliner´studies, 1995, 2001, 2004)

Sternberg and Horvath attempt to solve the problem through a prototype view of teacher expertise, "a featural model of similarity based categorisation" (1995, p. 9). They propose three critical prototypical features – *knowledge, efficiency* and *insight* – which distinguish expert teachers from novices and represent a core of clusters of similar features. This prototype model is considered particularly useful as it allows for variation and diversity among expert teachers. It was adopted by Bond et al. (2000) in their sophisticated study aimed at establishing and validating

professional standards for the National Board of Professional Teaching Standards. They worked with thirteen prototypical features of expertise[3] and created measures for each of them. Prototypical features were deployed in a comparative study of a group of Board certified teachers (experts) and a comparison group of experienced and well-prepared teachers. In our opinion the outcomes, no matter how remarkable Berliner (2004, p. 24) and others consider them, provide a validation of the assessment procedure used by the Board rather than a generalizable and objective tool for identification of expertise (cf. also Tsui, 2005, p. 170).

Research on expert teachers and the role of knowledge in expertise is represented in two competing paradigms; the tension between these reflects the theory – practice dilemma:

1) Studies since the cognitive shift, in particular those building on the rationalist information processing and decision-making approaches of cognitive psychology, have established the following characteristics of expert teachers:

- Expertise is based on a highly organised and elaborate knowledge base, which enables a deeper and more precise perception of issues and provides immediate access to optimal solutions of pedagogical situations.
- Experts constantly monitor their professional behaviour and actions.
- (Self-)reflection is a necessary prerequisite for achieving and maintaining expertise (Eraut, 1994; Tsui, 2003 and others).

2) Research aiming to give ´voice´ to teachers themselves and to acknowledge wisdom of practice, i.e. studies of the "mental lives" or thought processes of teachers, conceptualised teacher expertise in a different way:

- Expert teacher knowledge is embedded in the expert´s action (know-how).
- Expert know-how is tacit.
- Expertise in action is automatic and unreflected.
- Expertise is intuitive or even arational (Berliner, 2004, p. 22); experts do not monitor their actions consistently (Olson, 1992; Kagan, 1992; Berliner, 1995, 2004; Johnson, 2005, etc.).

3 These features or characteristics of expert teachers include: *better use of knowledge; extensive pedagogical content knowledge, including deep representations of subject matter knowledge; better problem solving strategies; better adaptation and modification of goals for diverse learners including better skills of improvisation; better decision making; more challenging objectives; better classroom climate; better perception of classroom events including a better ability to read cues from learners; greater sensitivity to context; better monitoring of learning and providing of feedback to students; more frequent testing of hypotheses; greater respect for learners; the display of greater passion for teaching*.

Expert Teacher Performance

In a study of expertise the specifics of context in which professional actions are performed must be acknowledged. Representatives of all professions, be they doctors, architects or teachers, deploy their knowledge in professional actions in accord with the conditions set for these actions. Pedagogical situations seem to be specific or at least very different from those in most other professions. In his description of classroom situations, Doyle (1986) pinpoints their multidimensionality, simultaneity, immediacy, unpredictability, publicness, and also their history. Similarly, Eraut notes that unlike with other professions such as lawyer or architect, the actions of a teacher are guided by a practical imperative: "The pressure for action is immediate, and to hesitate is to lose" (1994, p. 53–54). For classroom actions he adapts the metaphor hot action (as opposed to cool action, when there is sufficient time for consideration). In addition to this, pedagogical situations often belong among so-called ill-defined problems (vs. well-defined problems; originally used in medicine), i.e. problems for which there is no right solution or more than one possible solution (Eraut, 1994, p. 45).

The nature of pedagogical situations determines teachers´ actions and thus also the utilisation of knowledge in these actions. Since the 1980s research on teacher effectiveness has focused, amongst other issues, on the analysis of teacher knowledge-in-action. According to a detailed survey provided by Clark and Peterson (1986, pp. 255–296) experts differ from novices in the breadth and depth as well as the structure of their knowledge base, in both the pre-active and inter-active phases of teaching. An integrated knowledge base organised around ´big ideas´ (Bransford et al., 1999, pp. 31–33) and the ability to perform fluent retrieval of knowledge lead to greater effectiveness and efficiency in experts´ lesson-planning as well as in the development of long-term curricular projects. As regards the inter-active phase of teaching, it was found by Kagan (1992) in her meta-analysis of forty mainly qualitative studies of professional teacher development that, in addition to the above-mentioned features, a salient feature is the development of metacognition, i.e. teachers gradually become more aware of what they know and believe in and how their knowledge and beliefs change over time.

It is, then, generally accepted that a teacher´s actions are guided by their knowledge and that simultaneously this knowledge is deepened or modified through these actions (Dann, 2000, p. 82). Empirical evidence of differences in the novice and expert-teacher knowledge base and its availability in action proves that pedagogical actions, or in other words experience, are a necessary precondition for the development of expertise and expert knowledge. Closer attention will be paid to the processes of expertise development and maintenance in part 6.

Expert Teacher Knowledge

Expert teachers are said to be more knowledgeable than novices. A useful summary of the previous discussion on expert teachers´ superior cognition and

knowledge structures can be based on Ethell and McMeniman´s (2000) conclusions. They claim that an expert teacher has:

- large, highly organised knowledge bases with complex interconnected schemas which are easily accessed
- sets of basic automated skills, or routines, which are executed smoothly and apparently effortlessly
- well-developed but flexible and adaptive sets of strategic knowledge which are used for planning

As regards the first point, knowledge accumulated by experts over extensive periods of practice is not only broader than that of novices, but it is also of a different quality. It seems to be structured and organised around the main concepts of the domain (Bransford et al., 1999, pp. 31–33).

Approaches of cognitive science and the knowledge-based approach to expertise research have been widely discussed since the 1990s in connection with rapid changes of broader as well as immediate contexts (Eteläpelto & Collin, 2004, p. 234). Contextual determinants ranging from the actual context of a school classroom to a professional community and its functioning in a broader social context as reflected by social theory have had impact on new, "desirable" constructs of expertise, e.g., adaptive expertise (Hatano & Inagaki, 1986), creative expertise (Winograd, 1995), innovative expertise (Achtenhagen, 1995). As a consequence of these changes, the perception of expertise has developed new dimensions, such as a need for cognitive flexibility and a continuous need for innovation, i.e. also a restructuring of knowledge structures (Bereiter & Scardamalia, 1993).

The above factors have been accounted for in the development of models of the knowledge base for teaching. Since 1987 – when Shulman articulated his highly influential framework for a teacher knowledge base that included knowledge of content, context, general pedagogy, curriculum, learners, educational ends and pedagogical content knowledge as the central domain – a considerable amount of research has been conducted in this area (Valli & Tom, 1988; Turner-Bisset, 1999, 2001; Verloop, Van Driel, & Meijer, 2001; Kansanen 2009; van Dijk, 2009; in the Czech context Janík et al., 2009; Janík, 2009, and many others). In the course of reflection on these developments, Shulman himself redefined his model (Shulman & Shulman, 2004), choosing a holistic approach and combining the shared knowledge of the community of professionals and individual knowledge. Shulman and Shulman (2004) stress that there is an ongoing interaction between an individual professional and the community; therefore, the knowledge base consists of shared knowledge (knowledge a team or community should have) and distributed knowledge (knowledge each member should have). Furthermore, the knowledge base is not viewed as static, but as dynamic and growing.

The most burning issue in the discussion of expert teacher knowledge, however, is not the composition of the knowledge base, but rather the type or form of knowledge and its relation to classroom practice (Grossman, 1995, pp. 22–23). The

above-mentioned distinction made by the Shulmans (2004) of shared (sometimes labelled collective) and distributed (individual) knowledge is by no means the only one; in literature we may come across a plethora of classifications that explain different conceptions of knowledge. Behind these efforts to distinguish types of teachers' knowledge we can find different criteria. In our discussion we are going to build on the theory-practice criterion, partly because of its well-established tradition with its roots in the very beginnings of Western philosophy, partly because this distinction has provoked passionate and sometimes even heated debate among theoreticians/educationalists as well as among the teaching and lay publics. Attempts to bridge the theory-practice gap by its extrapolation to the relationship of theoretical and practical knowledge date back to Plato and Aristotle and their conceptions of epistémé vs. phronésis (Korthagen, 2001, p. 22), knowledge by description vs. knowledge by acquaintance (Russell, 1911), knowing that vs. knowing how (Ryle, 1949), declarative knowledge vs. procedural knowledge (Anderson, 1983), formal knowledge vs. practical knowledge (Fenstermacher, 1994), and others (see Figure 1).

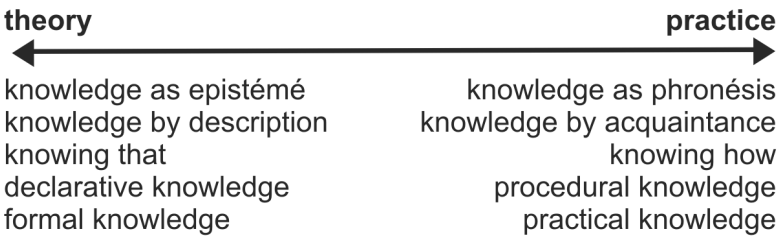

Figure 1. Knowledge classification based on the theory-practice criterion

Epistémé and phronésis: on the nature of expert teacher knowledge

Expertise in general as well as expertise in teaching has for centuries been linked to general, universal knowledge, to scientific understanding of a problem, to epistémé in the Platonian sense. Korthagen (2001, pp. 25–26) summarises the characteristics of epistémé: it is propositional, i.e. it consists of assertions of a general nature that can be explained, transmitted, and proved. The proofs are based upon empirical or theoretical research, in other words, their truthfulness or objectivity are always linked to a theory they are consistent with. It is a representative, fixed, and in that sense timeless knowledge that provides conceptualisation of real world phenomena and, last but not least, articulates concepts in the form of principles, rules and theorems, and provides us with language for conceptualisation.

The relevance of research-based knowledge and scientific theory to teaching were not questioned until the mid 1970s. In his famous Life in Classrooms, Jackson (1968, p. 7) described schools and classrooms as relatively stable physical and social environments where theory-based concepts were transmitted to learners. The 1970s marked a period of change in the perception of teachers and teaching. Increased criticism of the image of the teacher as a doer and ´delivery man´ of

knowledge gave birth to reconceptualisation of the field with teachers´ mental lives at the centre, with the key concepts of personal, practical knowledge organised in narrative images (initially Elbaz, 1983, and Clandinin, 1985; in the Czech context Štech, 1994, and others). According to Korthagen (2001, p. 25), phronésis requires a grasp of generalities as well as a knowledge of particular context-related facts; the latter is far more important. Dealing with the ultimate particular is an object of perception; therefore, the author claims, phronésis is perceptual while epistémé is conceptual. It is often difficult to verbalise as it is embedded in professional action – it is usually referred to as tacit (or implicit) knowledge. Emphasis on teacher-based practical knowledge, on phronésis perceived as practical wisdom of an individual nature, was frequently expressed as criticism or rejection of epistémé and its role in the teaching profession – a typical either/or approach was adopted.

An overview of the critique of university research-based knowledge was offered by Norris (2000, pp. 169–170), who noticed that the arguments either attempted to undercut the university research-based knowledge and empirical theory as irrelevant to teaching, or, on the other hand, to elevate teacher-based knowledge and experience as particularly suitable sources of teaching expertise.

The line of argumentation on which the proponents of phronésis build their cases starts from the claim that academic knowledge is too abstract and general while teaching is concrete and specific, e.g., "the generalisations of a Piaget or Brunner are of little help in sorting out the particular practical problems (teachers) are immediately faced with" (Carr, 1992, p. 246). Furthermore, academic knowledge has no direct links to practice, as the same author states: "discourse of a theoretical nature ... can have no real relevance to educational practice if it lacks a direct practical application" (Carr, 1992, p. 251). Norris (2000, p. 172) also refers to claims that research-based knowledge is unable to capture the inherent complexity of school situations; in addition, it incorrectly construes teaching as a causal process. Application of research-based knowledge is seen as technicalism in the sense used by Schön: "…teaching is a prime example of the sort of activity in which almost all the important decisions which need to be made at a practical level are of a moral rather than a technical nature" (Schön, 1987 in Carr, 1995, p. 323). Last but not least, there are arguments of a socio-political nature such as claims that university research-based knowledge tends to alienate teachers (Schön, 1992) because it endangers their ownership of practice and makes them "subservient to the producers of that knowledge" (Norris, 2000, p. 170), to academicians; yet teachers "are more than simply passive consumers of knowledge" (Fenstermacher, 1994, p. 18).

The elevation of teacher-based knowledge as a source of expertise, the second line of argumentation, views professional practice in education as the pursuit of goodness rather than the pursuit of truth (Norris, 2000, p. 173). In this view, knowledge useful for teaching can only be generated by a new type of research that is conducted by teachers themselves, as they have privileged access to it: "… the questions teachers ask about theory and practice ought to be the starting point for classroom inquiry (Cochran-Smith & Lytle, 1990, pp. 4–5). Perhaps the strongest or most widely accepted argument states that the type of knowledge needed for

successful teaching practice can only be acquired through experience of a special type: "The authority of experience simply does not transfer because it resides in having the experience" (Munby & Russell, 1994, p. 93).

To sum up, the phronésis paradigm claims that science produces knowledge that is propositional, general in nature, formulated in abstract terms, and often situated in a theoretical structure (Kessels & Korthagen, 1996, p. 18). What is needed for teaching is something like practical wisdom or knowing how rather than knowing that, as Eraut (1994, p. 15) points out.

Tension between episteme and phronésis: theory-practice dilemma

There is no doubt that professionals including teachers act in a complex and complicated field of tension between epistémé and phronésis representing the theory-practice dilemma. In seeking the sources of teaching expertise Norris (2000, p. 167) describes the relationship of practical vs. theoretical knowledge as follows: "The crux of the distinction … is that the first list is seen to represent from the inside the specific and concrete situations in which teachers work whilst the second represents the general and abstract perspectives of outsiders".

The theory-practice problem has persisted historically; viewed along a timeline, various approaches to the equilibrium between theory and practice are seen to have gained weight (Bromme & Tillema, 1995, pp. 261–262). Thus the major arguments underpinning the current extreme phronésis-orientation may be weighted and disputed.

Firstly, the discreditation of scientific theories in terms of their lack of ecological validity, i.e. direct applicability, seems to be untenable: immediate guidance for action is not the purpose of scientific theories, nor is their structure suited to this. In order to provide a basis for practical activity, theory requires transformation (Bromme & Tillema, 2000, p. 262) – practical knowledge differs in structure as well as content. No theory can – nor does it attempt to – capture the reality in its full complexity; therefore it does not aspire to offer an overall description or even prescriptions for action – yet, as Norris (2000, p. 179) notes, it can still generate insight and furnish understanding. Various aspects of teaching as a mulitidimensional endeavour are dealt with by different scientific disciplines; the integration of theoretical knowledge for the above purpose, or as Bromme and Tillema (1995, p. 266) note perhaps more precisely, the transgression of boundaries between disciplines for the gaining of insight, is a complicated and lengthy process. In teaching as a socially determined profession, this transgression includes boundaries set by local contexts within which professionals act.

Secondly, context is closely linked to a consideration of phronésis as individually developed and owned and to its tacit character. This characteristic is in contradiction with the social dimension of teaching expertise (Boshuizen, Bromme, & Gruber, 2004, p. 6), i.e. the view of professional teacher development as a process of enculturation into a professional community. Furthermore, contextual determination raises doubts about the tacit character of professional practical

knowledge, as shared language is a pre-requisite of a shared discourse necessary for collective understanding. It is claimed that phronésis is perceptual rather than conceptual (Korthagen, 2001, p. 25). In order to develop collective understanding, however, individual experience has to be reflected upon and articulated; teachers need to name notions, to conceptualize experience. The question remains of whether to adopt for this purpose the conceptual language of theory – and if not, for what reasons. Here we would rather hypothesise that both teachers and researchers function in explicit discourses, but that these discourses may be inherently different (Píšová, Kostková, & Janík et al., 2011). Though we do not wish to claim that they are mutually unintelligible, difference may significantly hamper understanding – or at least willingness to become involved in discussion.

Last but not least, content domains of the knowledge base for teaching should be brought up in the epistémé–phronésis discussion. Back in 1986 Shulman (p. 25–26) talked about "a missing program" in relation to the absence of attention to subject-matter content in teacher cognition research. More precisely, he did not question a sort of general agreement among the lay public and decision-makers concerning the importance of "teachers´ competence in the subjects they teach" (Shulman, 1986, p. 25) as a crucial factor in teacher quality. Nonetheless, he pointed out that it was not clear what sort of subject-matter knowledge this was: "basic skills, broad factual knowledge, scholarly depth"? (Shulman, 1986, p. 25). In designing his model of a knowledge base for teaching (1986) he proposed three kinds of content knowledge, i.e. subject-matter knowledge or content knowledge, pedagogical content knowledge and knowledge of curriculum. There can be little doubt that the first of these, i.e. subject-matter knowledge, represents epistémé in the sense of both substantive and syntactic structures of the relevant scientific discipline (Schwab, 1964 in Shulman, 1987, pp. 8–9), though we acknowledge the beliefs, assumptions and values that influence a teacher´s representations of these structures (Bromme, 2005; Gudmundsdottir, 1990). The type of knowledge which Shulman (1987) labelled pedagogical content knowledge refers to the cognitive aspects of the transformation processes for educational purposes. Komorek and Kattman (2008) presented a Model of Educational Reconstruction that attempts to capture the nature of these processes (cf. in the Czech context the Model of Didactic Transformation, Janík et al., 2009). The model is based on a constructivist epistemological position, i.e. "concerns the understanding of students´ perspectives as well as the interpretation of the scientific content" (Komorek & Kattman, 2008, p. 172). As explained in Janík et al. (2009, pp. 49–50), in teaching/learning processes the teacher moves in a semantic channel between the learner´s subjective preconcept and a disciplinary content, thus developing the intersubjective concept. Intersubjective concepts are not isolated units: they grow from the semantic network of the relevant disciplinary content, and have to be expressed in language (notions). The accepting of such a theory implies that a prerequisite for teacher´s know-how is epistémé in the area of the ´parent´ scientific discipline/s, in brief a´know what´.

Linking Practice and Theory: Towards Knowledge Integration and Flexibility

The preceding debate suggests that though there is an inevitable tension between epistémé and phronésis, both seem to play an important role in the development of teacher expertise. The transfer of epistémé and its utilisation in teacher´s actions are often described in agreement with Eraut´s view (1994, p. 17):

- "The public knowledge[4] of which a professional worker has cognizance will be an individual selection from a much larger public knowledge base, influenced by public knowledge encountered during professional education and independent reading, by personal interest and experience, and by social interchange with fellow professionals.
- Only a portion of the public knowledge which is potentially available to a professional has a significant chance of being used in practice. This portion, sometimes referred to as ´action knowledge´, comprises knowledge which has been sufficiently integrated into or connected with personal practice to be either automatically or very readily called into use. Only when problems are difficult and time is available to work on them will searching beyond the domain of action knowledge be likely."
- "Public knowledge which gets incorporated into action knowledge undergoes a process of personalisation in which some interpretations and uses become prominent while others get neglected."

Eraut´s explanation provides us with a useful starting point, as he acknowledges at least partial transfer of epistémé to – in his term – action knowledge, emphasises the need for knowledge integration processes, and pinpoints a knowledge personalisation process during which the beliefs, assumptions and value systems of a teacher come into play. In order to understand the role of epistémé and phronésis in the development of expert knowledge it is necessary to adopt a dynamic or developmental perspective. A number of studies conducted in another professional field (medicine) by Boshuizen and her colleagues (Boshuizen & Schmidt, 1992, 2000; Boshuizen, 2004) offer a perspective which seems to be applicable across professions.

Her theory includes three phases of the development or restructuring of knowledge (Boshuizen, 2004, pp. 74–76). The first phase, which typically takes place during professional undergraduate studies and professional induction, comprises three steps: knowledge accretion, validation and integration. The three steps should result in a well-integrated knowledge network validated by practice. Here we are obviously talking predominantly about theoretical knowledge (epistémé) in a number of disciplines which is "learned" and organised with a certain aim – in

4 Eraut (1994, p. 17) talks about public knowledge base as represented by publications and training courses. He also refers to the collective nature of this kind of knowledge, i.e. knowledge of the profession.

the case of teachers with the aim of creating opportunities for learners to acquire certain content and facilitating their learning processes. In the teaching profession, however, the long "apprenticeship of observation" (Lortie, 1975, p. 61) has to be taken into consideration. Compared to other professionals, future teachers possess rich and deeply rooted preconcepts as a result of years spent at school, though in a different social role. The processes of knowledge accretion may then be hindered by the filtering effect of preconcepts. Therefore a strong accent on knowledge reconstruction is necessary and processes may be quite demanding in terms of cognitive load as well as temporal requirements.

As regards knowledge integration, Bromme (1995, pp. 211–212) points out that the psychological question of cognitive integration still remains partly unanswered. In his opinion, it is rather "a transformation of the meaning of previously available ´academic´ concepts of the disciplines involved". In other words, in teaching subject matter, knowledge shapes the interpretation of pedagogical concepts – e.g., motivation may have a different significance for a teacher of mathematics than for a teacher of foreign languages. In addition to this, professional knowledge gets adapted to the specific environment and circumstances – in the case of teachers, to their learners and their previous knowledge or preconcepts as well as to the school culture. Bromme (1995, p. 212) labels this process contextualisation of knowledge. The resulting networks thus comprise knowledge of a different quality, the so-called ´amalgamating´ knowledge of different types (cf. Shulman, 1987).

When an integrated network gets used in practice, gradually it becomes possible to create direct lines in reasoning between different concepts, and over time to strengthen these direct lines, thus omitting intermediate concepts. Boshuizen (2004, p. 75) calls this second learning process or phase of professional knowledge development towards expertise "knowledge encapsulation" as it "includes the clustering aspects of the process and accounts for the automation involved". The clusters, as Bromme (1995, p. 212) notes, contain large amounts of original separated disciplinary knowledge "subsumed under a few general concepts".

The third phase of the learning process is described as script formation; scripts are perceived as "knowledge structures that describe stereotyped sequences of action" (Boshuizen, 2004, p. 75). Scripts then become activated according to the level of match with the situation. Actions conducted on the basis of scripts would differ significantly from actions underpinned by isolated concepts – the author actually links script formation to the development of professional competence.

In our discussion of the nature of expert teacher knowledge, the above-mentioned developmental perspective provided by Boshuizen (2004), Bromme (1995) and their colleagues seems to tally with some of the characteristics discussed in the text. For instance, the description of expert actions based on encapsulated or scripted knowledge here corresponds fully with the characteristics of expert teachers and their performance, as provided for by Eraut (see above). The perspective of a scripted knowledge structure would also account for the characteristics of phronésis as an individual, context-based, tacit construct rooted in perception, as discussed above.

In addition to this, it might provide clues for the phenomenon of so-called inert knowledge, a concept coined by Whitehead as early as 1929 to refer to knowledge that can be recalled when people are explicitly asked to do so but that is not used spontaneously in problem-solving even though it is relevant. In other words, "it does not guide one´s thinking and actions in new settings" (Hammerness et al., 2005, p. 372). A possible explanation for the phenomenon of inert knowledge linked to the three-phase model proposed by Boshuizen (2004) might be that inert knowledge represents concepts which have not been incorporated in the granular structure of encapsulated knowledge, and consequently in the scripts. In professional development towards expertise, it is vital, as Whitehead (1967, p. 5) says, "to keep knowledge alive", to prevent it from becoming inert. In order to overcome problems of inert knowledge, it is necessary to promote knowledge mobility, to provide opportunities for meaningful contextualisation and the utilising of knowledge in different settings, which requires a movement in the conceptual network through decontextualisation and re-contextualisation (cf. Štech, 2003); in general, to create rich spaces for knowledge dialogue.

In a sense, as far as the issue of inert knowledge is concerned, or more generally as far as the relevance of Boshuizen´s (2004) model for the development (and maintenance) of expertise in teaching is considered, it seems to offer an explanation for the cognitive dimension of what has been labelled routine expertise (Hatano & Inagaki, 1986; in the text above different terminology has been attached to similar concepts). Routine experts, according to them, function in a stable environment in a highly efficient way, but they are unable to respond to external change at the same level of efficiency. Routine experts are distinguished from so-called adaptive experts, who are capable of responding to external change in an innovative way (Bransford et al., 2005, pp. 49–52; Hammerness et al., 2005, pp. 358–389). It follows that cognitive flexibility or mobility, as opposed to permanent scripts, seems to be inherent in the concept of adaptive expertise. As teachers function in the context of constant evolvement of a broader educational context (Fullan, 2001) and with regard to the characteristics of pedagogical situations (Doyle, 1986), balance and a careful weighting of an accent on efficiency and innovativeness are important in professional teacher development.

The requirement of cognitive flexibility is consistent with the dynamic view of expertise acquisition formulated by Bereiter and Scardamalia (1993). In their study of experts and experienced non-experts they come to the conclusion that experts continuously reinvest mental resources freed by the acquisition of relevant knowledge through experience (cf. Boshuizen's scripted knowledge) by problematising what is taken as routine, by reformulating problems and solving them. Thus, the acquisition and maintenance of expertise seems to be determined by the constant meeting of epistémé and phronésis, transformation and restructuring of knowledge in reflection of the evolving environment.

Post Scriptum

As there are no definite responses to the questions posed in the text (nor, we might add, could any have been expected), we have opted for a post scriptum rather than a traditional conclusion.

The text aims to contribute to teacher professionalisation, which is viewed as closely linked to the image of what it is to be an expert. We address the role of knowledge as a source of teaching expertise, specifically focusing on the phenomenon of the epistémé-phronésis dilemma.

The discussion brings us to the view that the cognitive dimension of expertise and the processes of expertise development encompass both epistémé and phronésis. Though expert knowledge may be action-based in the sense that it is demonstrated and further developed in professional actions, it can hardly – at least not in professions – be acquired solely through experience and/or training, but it develops from epistémé in rather complex and non-linear learning processes which include integration, transformation and restructuring of theoretical knowledge. We realise that in putting a strong emphasis on this claim the text may seem slightly biased against practical knowledge. To some extent this has been the intention of the authors, partly stemming from the political reasons mentioned in the introductory part of our discussion and from the constant attempts to undermine the status of teachers and teaching as a full-fledged profession. In the context of university education (in general as well as teacher education) the generally accepted perception is of a hierarchy which favours theoretical knowledge over practical knowledge, the "head more than the hands" view (Goodson, Anstead, & Mangan, 1998, p. 141). At the same time, it is generally acknowledged that expertise in teaching cannot be achieved without experience, i.e. without practical knowledge, which is obviously valued less highly by the "head more than the hands" position.

In the text as a whole we have attempted to thematise the theory-practice dilemma (the episteme–phronésis tension) as a variation of the more general "head" vs. "hand" problem. By drawing attention to the need to connect theory and practice we want to argue that the "head"-"hand" hierarchy might not apply because it is equally true that "a hand can be raised above the head".

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Contact information
Michaela Píšová
Institute for Research in School Education
Department of English Language and Literature
Tomáš Janík
Institute for Research in School Education
Faculty of Education
Masaryk University
Poříčí 7/9
639 00 Brno
Czech Republic
pisova@ped.muni.cz
tjanik@ped.muni.cz

DEVELOPEMENT OF STUDENT TEACHERS' PROFESSIONAL IDENTITY THROUGH CONSTRUCTIVIST APPROACHES AND SELF-REFLECTIVE TECHNIQUES

VLADIMÍRA SPILKOVÁ

Charles University, Prague

Abstract: *The study presents partial results of "Teaching profession in the context of changing demands on education", a large-scale research project. What is reflected on are key theoretical starting points of a new model of professional teacher education – a socio-constructivist conception and reflective model. The question of a teacher´s professional identity and its components as well as the conception of teaching as part of professional identity including its developmental stages are placed at the centre of attention. There is a presentation of the aims, methods and results of research into the efficacy of constructivist approaches and reflective techniques for supporting student teachers´ professional development. Possibilities offered by and limitations of systematic usage of these innovative approaches are discussed.*

Key words: *teacher education, innovation, socio-constructivist conception, reflective model, professional identity, student´s conception of teaching, reflection, self-reflection, student portfolio*

Introduction

The study came into being within the framework of *Teaching profession in the context of changing demands on education*, a large-scale research project supported by the Ministry of Education, the author of which is the main investigator for the period of 2007–2013. The aim of this interdisciplinary research is to contribute to a system investigation into the professionalization of the teaching profession, initial and in-service teacher education in areas of theoretical starting points, empirical researches, applications to practice and recommendations for educational policy (Spilková & Vašutová, 2008).

Profiling topics include the transformation of the teaching profession, socio-professional roles, key professional competencies, and attitudinal-ethical qualities of teachers in connection with the transformation of the Czech education system. Ongoing curricular reform represents a crucial turning point in the conception of education, the functions and key objectives of school, quality teaching and teaching strategies, and thus it provides a brand-new view of the teaching profession.

Redefining the roles and professional competencies necessary for a high-quality mastering of the profession, in conditions of a changing paradigm of school education, is then the starting point for formulating theoretical starting points for the transformation of a teacher-education curriculum and for elaborating a system of teacher professional development. Empirical verification of the efficacy of selected innovative approaches to the content and process of initial and in-service teacher education is a fundamental task. Attention is paid mainly to investigating transformations in initial teacher education in the areas of pedagogy, psychology and subject didactics.

Theoretical Starting Points for Transformations of Initial Teacher Education

The above-mentioned research project includes an elaboration of the theoretical starting points of a new model of professional teacher education – professionalization of the teaching profession and teacher education, personality and socio-constructivist conceptions, a reflective model of teacher education, and evidence-based teacher education (e.g., Helus, 2008, 2010; Slavík, Dytrtová, & Fulková, 2010; Spilková & Vašutová, 2008; Spilková, Hejlová et al., 2010; Vašutová 2004; Hrabal & Pavelková, 2010).

The socio-constructivist conception and the reflective model are considered as pivotal; they have become the object of empirical verification of their possibilities and limitations in teacher education. Socio-constructivist approaches to education represent a radical turning point in how the learning process is regarded as a process of discovering, constructing and reconstructing knowledge, attitudes, competence and values on the basis of one´s own activity and existing experience with the help of the teacher and in cooperation with classmates. Stress is laid on comprehension and the ability to make use of knowledge to solve problems in real-life situations, understanding the sense of learning, adopting one´s own attitudes and viewpoints, and strengthening responsibility for one´s own learning. The socio-constructivist conception of teacher education lays emphasis on the student teacher´s „subjectivity under construction"; he is considered the chief agent of his professional development and a co-creator of his professional identity (e.g., Kincheloe, 1993; Pollard, 2001; Hustler & Intyre, 1996; Calderhead, 1989; Pollard & Tann, 1987; Grimmett & Erickson, 1988). The main purpose of initial teacher education in this conception is help and support in the individualized, gradual process of „becoming a teacher", which is understood as an active constructing and

creative mastering of the teaching profession on the basis of one´s own activity, one´s own experience, one´s own searching and self-discovery in the role of teacher and on the basis of collaboration with teachers and fellow students.

The development of a student teacher´s professional identity, the constructing of a student´s „professional self" in the sense of being aware of and clarifying personal „educational philosophy", „ideology", opinions, professional values, attitudes, expectations, etc., are considered to be the fundamental objective.

The conception of the profession and self-perception in the role of teacher have a major influence on how the teaching profession is practised. The so-called onion model (Korthagen, 2004; Korthagen & Vasalos, 2005; Píšová, 2007) is considered to be a key to understanding the importance of professional identity for a teacher´s actions; it describes five interconnected layers of the teacher´s personality: mission, identity, beliefs, competencies, and behaviour. The mission is understood as „awareness of our own existence in the world and the role which we see for ourselves in relations with our fellow men", or in other words as „a personal mission in the relation to our own work and life in general" (Kelchtermans & Ballet, 2002). This in-depth structure (which inspires me fundamentally to do what I do) tends to be designated by various terms: spirituality, passion, level of involvement, commitment, inspiration, ethics. Professional identity and beliefs are closely interconnected with mission. These inner levels together influence considerably the way an individual functions on outer levels (competencies, action). This means that a change in a teacher´s actions is conditioned by a change in inner, in-depth structures, but at the same time it is possible to influence the inner levels by changing the outer levels.

A teacher´s professional identity includes the following components:

- self-image – How do I see myself as a teacher?
- self-esteem – Am I a good teacher?
- self-efficacy – conviction about my own professional efficiency and competence for mastering the teaching profession in a successful and high-quality way
- job motivation – Why do I want to be a teacher? Why do I remain in the teaching profession?
- perception of the demands on the teaching profession – What exactly does it mean to be a good, efficient teacher? What do I want to accomplish as a teacher?
- prospects – How do I see my professional future?
- personal conception of teaching which is based on practical knowledge and beliefs

A teacher´s conception of teaching is an important part of a teacher´s professional identity (Mareš, Slavík, Svatoš, & Švec, 1996). The conception of teaching is a complex of opinions, attitudes, beliefs, values, intentions, wishes and expectations that is the cornerstone of all future professional activity of the student teacher or

teacher. It is a body consisting of partial concepts of different aspects, for example the aspect of the child, the pupil and his development, the concept of the sense, roles and function of school, objectives and contents of education, the concept of methods and teaching strategies, the concept of the teaching profession and key roles of the teacher, etc. (ibid). The forming of the student teacher´s conception of teaching in the course of teacher education is a vital stage in the long-term process of shaping the teacher´s conception of teaching.

We can differentiate between three basic stages in the development of the teacher's (student teacher's) conception of teaching (Spilková et al., 2004):

1. Preconception – a preliminary conception of teaching in the form of spontaneous and intuitively created opinions, ideas and attitudes based on individual childhood experience and subjective experience from the role of pupil. Emotions, positive and negative experience, various unconscious feelings, etc. play an important role in the creation of the preconception of teaching. It is the basis in experience of the preconception and strong emotional involvement that is probably behind its relatively strong incorporation and certain resistance to change. A student teacher enters a faculty of education with a clear-cut preconception of teaching at different levels which is influenced by the styles of schooling and conceptions of teaching he experienced at primary and secondary school.
2. A crystallising early conception of teaching – the basis of an individual conception of teaching, which is developed by contact with school reality, by first experiences in the role of teacher and by acquiring theoretical pedagogical and psychological knowledge. However, individual preconceptions of teaching interfere in this process to some degree. The conception is gradually refined and stabilised. To a certain extent, the conception at this stage still remains implicit, intuitive and relatively unconscious knowledge („tacit knowledge"), in the form of an „action or practical" theory that is difficult to analyse or express verbally even though it closely influences and directs the activity of the teacher.
3. A refined, rational, explicit concept of teaching on the part of the teacher (student teacher) that is informed by theory and created through systematic self-reflection and theoretical reflection on practical experience. At this stage understanding, rationalisation and verbalisation of implicit and intuitive „tacit knowledge" are formed. The intentions of D. A. Schön´s inflectional conception of the teacher in the role of „reflective practitioner" state that „knowing/knowledge in action" and „reflection in action" become subjects of a precise analysis – „reflection on action". It is important to teach teachers (student teachers) to keep returning to their activities in their thoughts and to examine them critically to increase awareness of the hidden „tacit" preconditions behind their behaviour, particular attitudes, decision processes, etc. ('What lies behind my activity, what opinions, attitudes, beliefs, value orientation?'). In the process by which the teacher

> (student teacher) cultivates his conception of teaching, the effort to „make tacit knowledge talk" is considered crucial. Verbalisation – the necessity to express verbally and give exact names to what is sometimes only felt and anticipated – leads to clarification, deeper understanding and an ability to see the whole context, connections, causes and consequences, etc. An elaborated, rationally argued conception of teaching that is founded in theory means that 'I know why I do things in a certain way, I know my sources and my cornerstones'; 'I can explain my concept and provide arguments for what its strong points are, where there may be certain limitations', etc.

The constructivist conception of teacher education, with its focus on the development of student teachers' professional identity on the basis of theoretical reflection on their own experience, adopts a critical attitude both towards the behaviouristic conception and the over-academic conception of teacher education. In the former case, the subject of criticism is predominantly an over-emphasis on the training of professional competencies delimited in unambiguous and concrete terms, which can lead to an over-technocratic, practice-based and craft-like conception of teacher education and thus to degradation of the teaching profession. In the latter case, it is a matter of the dominance of the subject component in teacher education over the professional component and of approaches based mainly on the transmission of ready-made knowledge which has no relation to contexts of school reality and student teachers´ actual experience.

Another influential conception elaborated within the research project – which is based, in some aspects, on principles similar to constructivism – is a reflective model of teacher education. Its basic starting points are concepts of the teacher as a reflective practitioner and science-based practitioner (Schön, 1983; Calderhead, 1989; McNeil-Turner, 1992; Coolahan, 1991; Lasley, 1992). These concepts are developed later on and will become a basis for the producing of other theories, e.g., reflective teaching (Pollard, 2001) and the realistic approach in teacher education (Korthagen, 2004). The realistic approach, based on the integrating of theoretical and practical components in teacher education, is a reaction to criticism of the "theory to practice" conception and the deductive "theory to practice" approach. Schön (1983) relativized the significance of applying theoretical knowledge to given situations in teaching and the presupposition that theory will somehow automatically become a starting point for teacher´s decisions and practical activity. The expectations related to the "theory to practice" conception were then contested even by researchers. Today, mechanical application of theory to practice is considered unrealistic, wishful thinking, "mission impossible" (Korthagen, 2004).

A realistic approach to teacher education is also delimited critically. This is in contrast to the utilitarian and practice-based approach which resulted in many countries following criticism of the "theory to practice" conception, and which minimizes theory and is based on a craft-like conception of the teaching profession. Korthagen integrates both approaches in his conception of the realistic approach, whose basis is consistent work with practical experience, with real situations at

school. Student teachers´ practical experience in the role of teacher needs to be analyzed, explained, deepened, linked to theory, and generalized. This means the creating of as many opportunities as possible to connect theoretical knowledge with "gestalt", with individual student teachers´ preconceptions of teaching acquired on the basis of experience in the role of pupil and in the role of teacher.

Stressing a theoretical reflection on practical experience, the realistic approach encourages a two-way motion – from practice to theory and from theory to practice – with the aim of interconnecting the worlds of theoretical knowledge and practical experience. If these are too separate in a student teacher´s consciousness, in extreme cases the result can be the existence of two totally isolated and unconnected worlds – the world of theory (principles learnt by heart, definitions, knowledge of theory without deeper understanding and comprehension of relations and context, without a personal relation to knowledge, without a critical opinion on it) and the world of practice (personal experience, subjective ideas, beliefs, attitudes). In such a case, theoretical knowledge then becomes a construct which lives its own life and hardly ever influences the student teacher´s conception of teaching and the reality of the teacher´s work.

In the reflective model of teacher education, the importance of student teachers´ practice, which is considered to be "a clinic for learning to teach", increases. Similarly to a medical student learning to give treatment at a clinic (a teaching hospital) under the guidance of a doctor, with the stress on a permanent interconnection of theory and practice, a student teacher should learn how to teach at school (clinical school) under the guidance of experts who are able to interconnect theory and practice in a functional way. However, in this analogy teaching lags behind medicine for the time being, since those who work with student teachers are teacher educators (in the role of supervisor or tutor during a student's teaching practice) who only seldom have teaching experience of their own at the given type of school, and elementary or secondary school teachers (in the role of mentor when guiding student teachers during their practice) who are not always capable of high-quality theoretical reflection on student teachers´ practical experience. The conception of clinical practice is based on systematic reflective practice, on the conception of the clinical school, which creates conditions for a partnership of and collaboration between clinical schools and universities, between students, mentors and teacher educators. Thus the clinical conception of practice makes room for a permanent interconnection of theory and practice**,** for the coming together of theoretical knowledge and student teachers´ systematically reflected-on personal experience (through individual reflection or the opinions of other student teachers, teachers from teaching practice and teacher educators through group reflection).

In the Czech Republic, several models of the clinical conception of practice have been verified in research in recent years (e.g., clinical year – Píšová, 2005; Píšová & Černá, 2002, clinical days – Spilková, 2004, clinical semester – Mojžíšová, 2004); these are based on systematic theoretical reflection on student teachers´ practical experience. It is presupposed that it is necessary to teach student teachers structured reflection. This is initiated by targeted questions, e.g., What did I do?

How? Why? With what intentions and expectations? With what results? What was I successful in? Why? Where were there problems and critical points? Why? Could it be done in a different way? How? What effects could be expected? What risks? How did I feel after teaching? What was I pondering over? What was I thinking about? What is behind my activity? What opinions, beliefs, values, attitudes? What do I believe in? What do I insist on? What do I doubt?

In addition to externally initiated structured reflection and self-reflection it is also important in the introductory phases of studies to create conditions for the development of self-reflection as an internal dialogue the student leads with himself on the basis of an internal need to understand one´s own actions as well as the actions of pupils (Švec, 1996; Stuchlíková, 2006). This means to go gradually from ´external´ questions (posed by teachers or classmates in the form of more or less structured questions or stimuli for deeper thought) to ´internal´ self-posed questions. This is a very important task in the creation of favourable conditions for gradual transformation of self-reflection in the form of internal dialogue into an internal need linked to the desire for self-formation, for improvement of one´s actions. Through such a perception of self-reflection we aim to promote in students self-regulation of their actions, professional behaviour and professional learning.

In addition to individual and group reflection, meta-reflection and reflection on partial reflection over a certain period of time, the summarizing of various "discoveries" is also important in the clinical conception of practice. What have I realized? What opinions and attitudes have I changed? What have I reassured myself about? Is there anything I do not understand yet? Practical experience which is not reflected upon and shared in professional discourse dissipates in the subconscious. In the words of Tomáš Janík, between the classroom and the staff room, teachers lose the vastest treasure, the "family silver" of the profession – their experience (Janík, 2005).

Not only is the reflective model a leading theoretical conception for the transformation of teacher education, but it is also an emphasized priority in the area of European education policy concerning teachers. In several recent European Commission documents, explicit recommendations for improving the quality of teacher education include the demand "to put through the culture of reflective practice and research among teachers" (i.e. action research in one´s own class, which is understood as a systematic reflection on professional actions with the aim of improving teaching). (Communiqué on the quality of teacher education, Brussels 2007, accessible at http://ec.europa.eu/education/policies).

Research into Efficacy of Constructivist Approaches and Reflective Techniques for the Development of Student Teachers' Professional Identity[1]

Since 1995, at the Faculty of Education at Charles University, Prague a new model of the study programme Primary School Teacher Education, based on selected theoretical starting points – professionalization of the teacher education programme, personality and socio-constructivist conceptions and a reflective model – has been validated in research. In the framework of carrying out the research projects "Development of national education and the professionalization of teachers in a European context" (1999–2004) and "Teaching profession in the context of changing demands on education" (from 2007, proponed until 2013), serial action research has been carried out which, among other things, has verified the efficacy of strategies developing students´ professional identity, mainly forming their conception of teaching through constructivist approaches and self-reflective techniques (Spilková, et al., 2004; Spilková & Vašutová, 2008; Hejlová, 2004; Tomková, 2004; Wildová, 2004; Spilková & Hejlová, 2010; Tomková, Chvál, & Hejlová, 2010).

Within the framework of action research the main methods used for data collection were as follows: analyses of students´ reflective diaries, essays, stories, interviews and discussions (focus group) with students, observation of teaching activities of students at primary school connected with students´ self-reflection and reflective commentaries by mentors.

We presupposed that it was possible to influence considerably student teachers´ personality and professional development during their studies, not least their conception of teaching; but this would occur only under certain conditions and when using specific teaching strategies and methods. Thus we polemicized with the results of some researches which consider the student´s conception of teaching relatively stable, resistant to change, and able to be influenced by theoretical study only slightly (Bird, Anderson, & Swidler, 1993; Goodman, 1986). We were inspired by other researches which, conversely, confirmed that it was possible to influence a student´s conception of teaching, mainly the prospect of constructivist approaches (Korthagen, 1992; Valli, 1997; Zuzovsky, 2001; Pollard, 2001; in the Czech Republic, e.g., Švec, 1995, 1999, 2001; Svatoš, 1997, 2000; Lukášová-Kantorková, 2003; Nezvalová, 1994, 1995; Spilková 2004, 2008; Janík 2005; Slavík 2001).

According to some of these authors, one of the main reasons why pedagogical and psychological knowledge has little influence on the student´s conception (preconception) of teaching is given by transmissive methods of teaching at

1 In the following text the terms professional development and professional identity are used quite frequently (sometimes in a way that might lead to their being perceived as synonyms). A student´s professional development is viewed as a construction of one´s own conception of the teaching profession, as a complex process of gradually becoming a teacher, which includes building one´s professional identity, gaining knowledge, skills and pedagogical conditions which are perceived holistically as a complex of corporal, mental and moral dispositions for action.

university, mainly of pedagogy, psychology and subject didactics. Knowledge is transmitted in a ready-made form, normatively in the form of definitions and theories with no relation to real contexts of school practice and students´ own experience. A common result of this is the forming of superficial and formal knowledge which a student teacher is unable to make use of to develop his own conception of teaching and practical activity. The transmissive approach to the university education of student teachers, mainly the abstract, de-contextualized and impersonal character of transmitted knowledge, is a frequent subject of criticism (e.g., Štech, 1999). Being aware of the limitations of transmissive methods in the area of possible cultivation of a student´s conception of teaching, some authors consider that the greatest challenge for teacher education is "to overcome the predominant metaphor of transmission and to transform it into the metaphor of construction" (Lindberg, 1998).

The starting point of our research was the presupposition that considerable changes in professional identity, mainly in a student teacher´s conception of teaching, are possible provided socio-constructivist approaches (they work with preconceptions and have strategies devised for their restructuring) are made use of in the pedagogical-psychological component of teacher education, and, within this framework, a student´s self-reflection and theoretical reflection on his practical experience are developed systematically.

It is vital to emphasise here that the development of professional identity is influenced by other subjects in addition to educational sciences (e.g., Janík, Mužík, & Šimoník, 2004; Staněk, 2010). This fact gains importance in multidisciplinary primary teacher education, where students are at the intersection of a varied, sometimes contradictory influence of different subjects. The measure of influence exerted on each individual student varies significantly.This finding is supported by studies in which students evaluated the relevance of study programme components and subjects for their own professional development (e.g., Havlík, 2001; Vašutová, 2004).

Now it is important to introduce briefly the overall context of the study programme within whose framework the efficacy of the innovative approaches has been examined: Primary School Teacher Education at the Faculty of Education at Charles University, Prague. The focus of the programme is on pedagogical and psychological disciplines, subject didactics and continuous practical training, which are represented as a profiling and integrating component in the course of studies as a whole. The integration of theoretical and practical education and new forms of collaboration related to integration between the faculty and faculty training schools, are considered pivotal. Education of this category of teachers is conceived as a gradual system of activities, which a student goes through on his way to acquiring a teaching qualification. A five-year study programme provides sufficient room for continuous development of a student´s professional identity, whose stages have specifically defined objectives, contents and teaching strategies.

Of particular interest to our research are the introductory stages, which are roughly equivalent to the first and second years of study. (The main results of the research have been published – e.g., Spilková, et al., 2004; Spilková & Vašutová,

2008; Koťátková, 2004; Tomková, 2004; Tomková, Chvál, & Hejlová, 2010). The first stage involves principally the support of the personality and social development of the student, the development of self-knowledge, self-evaluation, self-regulation, cultivation of social sensitiveness, empathy, and the acquisition of high-quality verbal and non-verbal communication skills. We presume that the acquiring of an ability to self-reflect and the effort to understand one´s own personality at the very beginning of the programme is an important impulse for work on self-development that helps the student to take responsibility for his own personality and professional development. With this in mind, a two-semester course with the title Personal and Social Education was included in the study programme. Research verification conducted over several years has proved its considerable formative effect (Koťátková, 2004).

In the area of professional development students are encouraged to know their „starting" professional identity and to research their professional motivation ('When and why did I decide for teaching?'; 'What influences are decisive?') and understanding of teaching ('What does being a teacher mean to me?'; 'Where do I see the sense of the teaching profession?'; 'What puts me off? What am I afraid of?'). In Introductory Pedagogical Practice, conducted in the first semester, students gain their first experience of the role of teacher, which they will work with in several courses later on. In Introduction to Pedagogy, they are introduced to methods of reflection on pedagogical experience and self-reflection. They are acquainted with techniques of reflective writing, and they write their first pedagogical essays on various topics, e.g., I, a future teacher.

What is considered important for the forming of a student´s conception of teaching is the second stage (2nd, possibly 3rd year of study), at whose core is Didactics of Primary Education, which comes together with Teaching Practice to form the so-called clinical day (every week student teachers have 4 lessons of practice at a school and 4 lessons of Didactics in one day, in the course of 2 semesters). A stable group of 12–15 student teachers, a teacher educator and 4–5 mentors from schools is created and cooperates in finding solutions to practical school situations associated with theoretical problems. Some seminars are run by mentors from training primary schools.

As part of their practical preparation in schools, students learn to "investigate practice in a professional manner", and thus to observe, describe and reflect a teacher's activity with children. (They learn to use suitable methodological processes and conceptual apparatus). The aim is to achieve deeper understanding of school as a whole complex, classroom, pupils and their developmental changes and individual differences, their types of reasoning, their experiences, behaviour, interests, and the ways they acquire experiences with different forms of schools and different teaching styles. Students get an insider's view of the key aspects of a teacher's pedagogical activity: lesson planning, formulating objectives and selection of educational content, communication with pupils, influencing social climate in the classroom, teaching strategy and method, ways of motivation and evaluation of pupils.

About half of the practical preparation is dedicated to the "researching of practice" through one´s own teaching attempts. All practical experience acquired (from observation and one´s own activities in the role of teacher) are subject to systematic theoretical reflection and self-reflection. This forms the basis of all activities in general didactics seminars. Actions are reflected on by questions such as: What did I do? How and why? With what intentions and expectations? With what results? What was I successful in? Why? Where were there problems and critical points? Why? Could it be done in a different way? How? What effects could be expected? What risks? How did I feel after teaching? What was I pondering over? What is behind my activity? What opinions, beliefs, values, attitudes? What do I believe in? What do I insist on? What do I doubt? The support of the development of a student´s professional identity, especially help with the forming of an individual conception of teaching, is the predominant teaching objective within the clinical day. By various methods, students are led to a knowledge (awareness, verbalization) of their preconceptions of teaching. We consider reflective writing approaches in several ways as the most important "awareness tool" for support of self-reflection and unveiling of the preconception: (1) Free**,** independent writing in the reflective diary – reflection of all practice, individual statements by students on their own teaching activities, experiences, evaluating commentaries, questions etc.; (2) Focused writing – essays on selected topics, e.g., concerning clarification of one's own ideas about school, teacher, teaching: "What does good, high-quality school, teacher, teaching mean to you?", "What is your idea of a good, pleasant pupil, or of a pupil who is not likeable?", " What education targets do I consider as the most important? ", concerning self-reflection on the role of teacher: "What kind of a teacher am I?"; (3) Supported writing – targeted questions concerning a specific topic, e.g., the topic of home-schooling: "What is your opinion of home-schooling?", "What in your opinion are the advantages of this type of education, and where do you see problems and critical points?", "What could your parents mediate to you in a better manner than school and what on the other hand might be missing?", or questions concerning self-reflection: "What am I good at? What am I successful in when working with children?", "What makes me happy?", "What annoys me? What do I have problems with?"; (4) Unfinished sentences offered to students for consideration and completion: "I consider it of primary importance that my pupils... When I am a teacher I will not insist that my pupils... The most important thing for life is that pupils take from school..."; (5) Exercises to evoke childhood memories (individual or group activities), which help the student to "understand the child in himself", to remember feelings, experiences: "What can I remember about my attitude to school in my childhood?", "What did I like and dislike?", "What worried me, what made me feel afraid?", "What did he mind, when did he feel good, what made him feel happy, etc.". This emotional basis, unconscious and hidden, is an effective source for the creation of professional approaches, opinions, values and behaviour, and therefore it is important to return also to a more remote past, to recollections and experiences from childhood. Recollections are investigated from the point of view of the present while considering situations in light of their

context, possible causes, etc; (6) Making a story linked to a picture, which serves to show us how we perceive, experience and understand the same things in different ways because we project our inner world onto them. Students read to one another their versions of the story, predicating what happens in the picture and discussing what is behind their subjective interpretations of reality (opinions, experience, ideas, personal qualities, current psychological states, etc.). We consider it crucial to support in student teachers an increasing awareness of the significance of the mechanism for projecting the inner world onto a perception and assessment of outer reality. By similar activities, we try to contribute to a student´s understanding – that his conception of a pupil is a subjective construct of what the pupil is like that may be very far from the reality, for example. The aim is to teach students to explore critically their ideas, conceptions and interpretations of school realities.

Apart from becoming aware of and verbalizing preconceptions of teaching by means of narrative methods, reflective writing and projective techniques, another important element in the supporting of students as they develop their own conceptions of teaching is systematic and structured reflection on their own teaching attempts and self-reflection in the role of the teacher. The role of pedagogical theory is highlighted during the transition from the first developmental stage of a student teacher´s conception of teaching in the form of an intuitive and implicit preconception to an explicit conception that is based more in theory and more rationally motivated (second and third developmental stages). Students are introduced to didactic topics on the basis of reflection on their practical experience. Key terms are transmitted on the basis of constructivist approaches, through the examining, discovering and constructing of new knowledge on the basis of one´s own activities and experience and in interaction with the teacher and fellow students.

When creating new notions, one starts from preconceptions and mental representations, e.g., pedagogical communication, climate in the class, teacher´s authority, successful pupil, learning styles, types of intelligence, assessment of pupils. When presenting preconceptions, students find support in practical experience in the role of teacher gained continuously in the course of pedagogical practice as well as in experience of the role of pupil (how I perceived it and experienced it). Furthermore, individual preconceptions are contextualized: students explain the context and give reasons for their points of view. The teacher educator leads group discussions and supports the interaction of different opinions and opposing viewpoints.

At another stage – generalization and de-contextualization – the focus of activities is on cooperation when discovering common features and key characteristics which are valid in various contexts. Finally, various conceptions of problems investigated in specialist literature and results of research are transmitted and new notions and conceptions constructed (reconstructed). The constructivist conception of the plurality of human cognition promotes a tendency to transmit to students a pedagogical theory as disputable, inconsist, ambiguous, and dynamic, connected with their thinking about things and practical experience, not in the form of axioms and instruction manuals providing solutions.

The results of action researches have confirmed (Spilková, 2001, 2004; Spilková & Vašutová, 2008) that systematic application of specific teaching strategies (becoming aware of students´ preconceptions through reflective writing, projective methods, work with memories and childhood experiences, through systematically structured reflection on one´s own experience in the role of teacher and constructivist approaches to teaching pedagogical disciplines) opens up considerable possibilities for developing students´ professional identity and influencing their conception of teaching.

It is possible to cultivate effectively students´ conception of teaching from the very beginning of their studies. It is important to help students uncover their preconceptions of teaching (e.g., the first developmental stage) as soon as possible, to make these preconceptions „talk", to discuss them, doubt them, supplement them and help to rebuild them (deconstruct, reconstruct). If communication between the old and the new (learning, experience, etc.) is impossible, if work with „preliminary" ideas, perceptions and experience is not involved and teaching is understood as absorption of new learning, the old layers of knowledge are covered by new ones. They stay in separated layers with the original influential core underneath in the shape of the preconception, which has a filter-like function for future experience and new knowledge.

It was also proved that the process of construction of a student's conception of teaching is a complicated, long-term event that has its laws and specifics, its turning and critical points, its disappointments and rejecting of some opinions („My ideas are idealistic and impossible to implement in practice"; „Children are worse than I thought", etc.) Support in developing professional identity has to be provided to students individually and continuously throughout the period of study.

There are great differences between students regarding the strength and definition of the preconception of teaching. There are also big differences in the extent to which different students are willing to make their opinions, ideas and conceptions public, to explain and substantiate them and also in their willingness to get involved in the creation of a theory-based and rationally argued conception of teaching. Furthermore, there are large disparities in the ability to self-reflect. It is possible to identify grave problems in the influencing of the conception of teaching in two types of students. The larger group consists of students (mainly women graduates from secondary pedagogical schools) whose preconceptions of teaching are quite well formed and influenced by an imprinted mechanism in the form of various habits, stable opinions and stances. Some students with a similarly strong professional imprint come to the Faculty of Education „cocoon-like", with a relatively closed conception of teaching, which is very difficult to influence. They usually have a negative or sceptical relation to pedagogical theory and overrate the importance of practical experience and intuition („Theory is too common and unusable, practice is something different, it works in a different way in practice.").

The second "problematic" group is made up of very intuitive students with strong emotionality who are deeply "rooted" in the subjective world of experience and reject verbalisation and rationalisation of their feelings, opinions, stances and

theoretical reflection on practical experience. It is very difficult to connect the world of theory with the world of such students' practical experience. Very often they even find it difficult to use special terminology to describe pedagogical reality and quite often they use lay expressions.

In connection with the investigation into the efficacy of strategies to develop student teachers´ professional identity in the initial stage of their study (in the 1st and 2nd years) as described above, the verifying of other possibilities for the improving of the quality of the professionalization process has proceeded since 2007 within the research project "Teaching profession in the context of changing demands on education". Now we concentrate on supporting the development of students´ professional identity, in particular on the cultivation of the student teacher´s conception of teaching in other stages of their study (3rd – 5th year). We verify the possibilities offered by and limitations of the use of the student portfolio to support student teachers´ professional development in the programme Primary School Teacher Education.

The student portfolio and systematic work with it are important parts of the reflective model of teacher education and a distinctive characteristic of the conception of teacher education in many European countries, e.g., the Netherlands, England, Ireland, Portugal, and Belgium (Clarke, 2002; Kohonen, 2002). In the Czech context, the student portfolio has asserted itself as a significant innovation of recent years (e.g., Píšová, 2007; Spilková, 2004, 2007; Lukášová-Kantorková, 2004; Tomková, 2004; Marková, 2007).

The portfolio, a structured collection of a student's work over a certain period of teaching, documents the processes and results of a student´s professional development. Primary objectives of the creating of the portfolio and working with it are: (a) to teach students continuous, systematic reflection on the long-term process of becoming a teacher and gradual self-discovery in the role of teacher (Clarke, 2002); (b) to teach them to document individual stages of professional development (to identify progress and problems), to return to them, to assess and reassess (Kohonen, 2002); (c) to support individualization of the professionalization process; (d) to support authenticity when reaching professional maturity (to be oneself in the teaching profession); (e) to enable the processing of experiences from practice, to make use of the significance of experience in professional development (interconnecting cognitive and emotional dimensions of learning); (f) to support autonomous learning, self-regulation, responsibility for one´s own development; (g) to develop the need for self-reflection, to help realize the importance of systematic reflecting on oneself and looking back at one´s actions, attitudes, ideas, and feelings because of professional growth (Spilková, 2007).

A portfolio devised in a high-quality way contributes to greater integration of studies, in particular of their theoretical and practical components and the pedagogical-psychological and subject didactics component. The portfolio can be made use of for various purposes, which then influence its content and the criteria for selecting materials. In principle, two basic types of portfolios can be distinguished: the continuous, formative, processual, working, whose main objective is to

monitor development and to document progress in the course of the study, and the summative, final, presentational, representative, exemplary, which documents study results and the level of professional development attained. The portfolio is a valuable tool for self-assessment and self-development. It forms a basis for the determining of a personal plan of development, and for delimiting one´s own objectives – what I need to learn, what I want to be better at – and for continuous assessment of how I succeed in it. When making use of the portfolio for external assessment, the assessment of the level of students´ professional development tends to have the qualities of authentic, qualitative and individualized assessment.

As already mentioned, within the research project "Teaching profession in the context of changing demands on education" we examine the role of the student portfolio when supporting professional growth, we verify the efficacy of various approaches to its creation and types of work with it in the course of and at the end of the course of study, as well as possibilities for its use for formative and summative assessment and for self-assessment and external assessment.

Now we will concentrate on making use of the portfolio in the study programme Primary School Teacher Education (Tomková, 2004, 2008; Spilková, 2007; Spilková & Vašutová, 2008). The creation of the portfolio is understood as recording the process of reflection on an individual path to the teaching profession, and as documenting a personal story in the creating of a professional identity which comprises key points, cross-roads, turning points and possibly crises in the process of professionalization. Work with the portfolio runs through the whole study programme (from the 1st to the 5th year), emphasis being laid on a gradual conception. Approaches to developing students´ professional identity in the first two years of study have been described above. As for the portfolio, at the very beginning of the first year a workshop is held where students obtain basic information about the conception, objectives and content of the portfolio and are introduced to methods of reflection and self-reflection. In the second year, as part of a didactics seminar, another workshop is held, this time aimed at creating the portfolio. Students think about selecting materials from the first two years of study which they consider important for personal reasons and their professional development and which they would include in their portfolios with an explanatory comment.

In the third and fourth years, an elective course is offered which is aimed both at creating a final student portfolio (presentational, representative) and its defence during the final state examination, and also at work with a pupil portfolio at a primary school. The final year provides room for the summarization of partial reflections, looking back at the studies as a whole after pedagogical practice. Creating a professional CV under the title "My path to the teaching profession" plays an important role. This is where students think about their development in the course of their studies: How did my conception of teaching, my professional "self" develop? – In what areas were my opinions reinforced? Which opinions, ideas and attitudes did I change or abandon completely? Why? What influenced me most in the course of the study? (What? Who? Why?)

We attach great significance to the final reflection on the question "What kind of teacher am I?" – What am I leaving the faculty with? What is my conception of

teaching? Where are my strengths and weaknesses? – What do I want to work on further and how? The starting point for a student´s self-assessment is the Framework of a Teacher´s Professional Qualities, which delimits the demands on practice of the teaching profession in a high-quality way (Spilková, Tomková, et al., 2010).

In the last couple of years, the defence of the portfolio has been an alternative to the traditional final state examination in pedagogy. The so-called representative, structured portfolio is the subject of the defence. Its content is delimited generally; however, binding elements are combined with the principle of individual creation and electiveness (what is significant for me). The portfolio contains mainly: (a) selected works, predominantly from the area of pedagogical-psychological disciplines and subject didactics, together with a comment on why they were chosen, in what respects they influenced professional development (seminar, end-of-year papers, project, making a teaching aid, didactic material); (b) documents from pedagogical practice (reflective diary, lesson plans, photo and video documentation, reflections of fellow students and mentors from training schools); (c) an autobiographical description of professional development – essays, stories, mind maps, professional CV – My path to the teaching profession. Primary criteria for assessing the portfolio are: quality of documentation (selection of materials), presentation and assessment of progress and results of professional qualifications, and ability to reflect theoretically on practical experience. The results of analysis of the portfolios and their defence during the final state examination have been published (Tomková, 2008).

Nowadays, we concentrate on developing student´s professional identity throughout the course of study, and on examining "critical stages, periods" and "critical events, turning points" (Sikes, Measor, & Woods, 1985). The terms 'critical events' and 'turning points' denote situations which represent for a student a considerable change in how he views things and his approach to them and a certain turning point in his overall development. A critical period or stage means a greater likelihood of the occurrence of critical events, but this does not mean that a particular critical event will actually happen during this period.

We are preparing a research design whose objective is to find out whether it is possible to identify, in the course of a five-year study programme of teacher education, some significant, critical stages in the development of a student´s professional identity. We are focusing on stages we presume to be critical:

- the decision to become a teacher, entering the faculty and the first collision of expectations vis-a-vis the study and even of the teaching profession with reality
- the gaining of practical experience in the role of teacher in the course of the clinical day and practice within the subject of didactics, including systematic reflection on these
- the culmination of the process of becoming a teacher, attempts at synthesizing theoretical knowledge and practical experience in the final year of study, in particular after continuous pedagogical practice, which is,

in fact, a doorway to the reality of present-day demands on the teaching profession

The basic source of data will comprise analyses of portfolios and in particular reflective diaries and essays they contain. We attach great significance to research reflection on students´ essays (Tomková, Chvál, & Hejlová, 2010). In the course of their studies, students are asked three times to write an essay on the topic "What kind of teacher am I?; in the first semester (I, a future teacher), after the fourth semester (I am becoming a teacher – What am I like?), and at the end of the studies (What kind of teacher am I?). The comparative analysis of essays is a valuable source of data for an investigation of the development of students´ professional identity. It enables the observing of whether and how their perception of school and pupils, their conception of the teaching profession, and their self-perception in the role of teacher have changed. Also, analysis of essays by various students at the same stage of their studies enables an investigatation of general and specific (individual) characteristics in the development of a student´s professional identity.

We consider narrative methods a promising tool for the developing of a student´s professional identity and a source of new knowledge about the process of professionalization in the course of teacher education, which has not yet been made use of fully. They are based on the narrating or writing of stories which include experiences from the past and reflections on the future. The method of so-called critical stories is specific: these describe an extraordinary event representing a certain turning point, namely a critical event, for my attitudes, opinions and perception. The method of critical storytelling makes possible a return to past experiences and a revealing of their meaning for present-day thinking, experience, decision-making and behaviour.

Conclusion

The results of research have proved that the systematic application of specific teaching strategies, in particular systematic reflection on one´s own experience in the role of pupil and even teacher, and constructivist approaches to teaching pedagogical disciplines, form a significant tool for the developing of a student´s professional identity and for influencing his conception of teaching. Despite confirmation of the prospects of these approaches for teacher education, it is also necessary to consider the critical points or limitations of these approaches. Questions which can be formulated in terms of polarities are asked urgently: (a) normative vs. creative, discursive mastering of the teaching profession; this means to what extent it is good to provide students with support, algorithms, "knacks" as a certain centre of professional security, and on the other hand, what extent of diversification and incongruity is reasonable in the plurality of theories and conceptions; (b) individualization of teacher education (influence of personality, constructivist and reflective conceptions) vs. its standardization (influence of tendencies to define the professional standard); (c) influencing of the student´s

conception of teaching vs. authenticity of student teacher´s actions, which is, according to Rogers, one of a teacher´s fundamental qualities; this queries to what extent we should guide and rectify the conception of teaching and to what extent enable and help student teachers to be themselves in the role of teacher.

The most important critical point in the systematic application of constructivist and self-reflective approaches is probably given by the fact that permanent critical examination of one´s own activities, problematization, constantly asking new questions, and a tendency to look for better procedures can all fuel a teacher´s insecurities, weaken his overall professional stability, and have a negative influence on the creation of professional identity and self-confidence. This can be a high-risk factor for certain personality types in particular, e.g., those subject to increased anxiety or with an extremely strong sense of professional responsibility. In order to create a student´s professional identity, it is important to encourage his self-confidence, to support the feeling of certainty that I am doing things well, that I am competent, that I will accomplish what I am trying to do as a teacher, and to support what I care about. To find a balance between the need for certainty and a healthy amount of doubt in the teaching profession is an important but very complicated task.

In all of the cases mentioned, it is mainly a question of looking for a reasonable extent and a balance between approaches that are polar opposites. A priority is the promotion of a tendency to defuse the tension that exists between the academic conception (the universitarization of teacher education entails a stress on the academic as it is traditionally understood), the competence conception (accentuated by the needs of school practice) and the personality, constructivist and reflective conception (which emphasizes individualization and authenticity in the process of becoming a teacher).

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Contact information
Vladimíra Spilková
Department of Primary Education
Faculty of Education
Charles University
M. D. Rettigové 4
Praha 1, 116 39
Czech Republic
vladimira.spilkova@email.cz

PRIMARY EDUCATION TEACHES AND THEIR PROFESSIONAL ACTIVITIES WITHIN A RESEARCH EXAMINATION

BRONISLAVA KASÁČOVÁ

Matej Bel University in Banská Bystrica

Abstract: *Research on teachers offers quite a wide spectrum of topics but despite the quantity, the platform of systematic research into the teaching profession remains fragmented. The paper presents the outcomes of professiographic research. The primary objective of the research was to identify specific professional activities of primary education teachers within the real conditions of teaching practice, record and discover their structure, and to determine the ratio of particular activities in relation to full professional performance. Partial objectives included a professional activity profile of primary education teachers, the establishing of a time load of primary education teachers, and qualitative description and analysis of professional activities.*

Key words: *pedeutological, psychological and sociological research on teachers, primary education teachers, professional performance of primary teachers, professional profile and time load, professional activities and structure*

Introduction

Research on teachers is traditionally a very common tool and offers quite a wide spectrum of topics suitable and attractive for examination by research. These form the significant field of pedeutology (the study of the teacher) and act as sources and stimuli for consideration and thinking, inspire innovations in teacher training, and nowadays provide necessary support for the passing of legislative steps for the standardization of the profession. However, they do not always monitor the wide range of a defined research topic within all the categories of the teaching profession. This is quite natural, since the particular teacher categories differ significantly in their praxeologic form, as well as in the practice of undergraduate training. The main reason, though, is that our circumstances dictate that pedeutological research is mostly performed by academic experts, whose primary interest lies in

the theory and practice of the training of faculty teachers. At present, Slovakia has no facility with the objective of performing countrywide pedagogical research, not to mention pedeutological research. Thus we should note that despite the quantity of topics, the platform for systematic study of the teaching profession is fragmented. One attempt at a holistic examination of the teaching profession can be found in the research activities on the teaching profession carried out at the Faculty of Education of Matej Bel University in the town of Banská Bystrica. Since 2008 these have been supported by the Slovak Research and Development Agency under the projects APVV-0026-07 *The Profession of Pre-primary Education Teacher and Primary Education Teacher within Dynamic Concept* (Cabanová, 2009) and VEGA 1/0593/08 *The Teaching Profession in the Elementary Education – Professiography and Professiogram.*

Theoretical Context: Research on Teachers from the Perspective of Research Topics and Problems

In general, the topics of pedeutological research can be divided from the perspective of individual scientific fields into the *pedeutological, psychological and sociological*. This division is sorted thematically according to the focus of research. The problem within pedeutological research lies in the very fact that it mostly involves pedagogues or teachers working in academe, where, after all, the methodological substance of research is conceived in a somewhat unilateral way. However, perspectives derived from psychological and methodological positions bring enhancing findings, even though their analytical results are less applicable for the pedeutological practice of teacher training as they offer rather stimuli than suggestions. From the point of view of a sociological treatment, we tend to receive descriptive probes of the existing professional status as seen from various angles, a few prognostic ones, while demographic perspective studies are missing entirely. The thematic summary is not a detailed balance but more of an outline, in which can be found reference to the sources of the particular studies: Hanesová, 2009; Cabanová in Kasáčová & Tabačáková, 2010).

The *pedagogical* research on teachers in the context of Slovakia in the last twenty years can be shown in a brief outline that gives thematic points of focus as follows:

- *The motivation for studying teaching and the performance of the teaching profession*. In essence, this topic contains two different problems – as usual the choice of studies is different where significant differences occur between teacher categories and the question of whether students want to study because they wish to engage in the teaching profession or merely want to study a certain field of expertise and teaching studies offer a more convenient way than studying a specific academic discipline. (Kariková, 2005ab; Lukášová, 2006, etc.)

- *Students' expectations of the studies and the educational needs of a student teacher*. From today's perspective, it is possible to follow this aim more as a part of the evaluation of the study programmes for the purpose of surveying students' satisfaction with their studies; it can also take the form of ascertaining a student's progress in the formation of the image the profession evokes. (Lukášová-Kantorková, 2003, Seberová, 2004, etc.)
- *Teachers' opinions on teaching, students and other phenomena connected with the performance of the teaching profession are frequent topics, yet they are not processed in self-contained form*. In connection with pedeutology, it is not possible to classify all of these here. These mostly include didactic and socio-educational problems and other sub-topics. (Doušková, 2006)
- *Working methods and forms applied by teachers (during the presentation of teaching content, assessing the student etc.) have become more attractive mainly through the advent of alternative and innovative pedagogical approaches to education and teaching*. In general, we can say that conceptually solid approaches are missing, not least in relation to professional activities. (Kosová & Pupala, 2004; Doušková, 2006)
- *Competences and pedagogical capabilities of teachers/students* have become a particular focus of interest since the 1990's as a reaction to the rising, "trendy" topic of *competence*. Today they are mostly connected with the development of competence-oriented education concepts of teacher training. It is necessary to highlight the terminological inaccuracies and confusion in what the term "competence" connotes in our own and an English-speaking context. (Kasáčová, 2005; Kosová & Pupala, 2004; Kosová, 2009; Doušková & Vančíková, 2008)
- *Teacher's concept of teaching, reflection and self-reflection on the part of the teacher*. These topics originated alongside the trend of qualitative research in the humanities and social sciences; they have phenomenological substance in their theoretical foundations and correspond to psychologizing pedagogical approaches. The utilization of the research findings has rather an individual and professionalizing character. (Gavora, 2009; Kasáčová, 2005; Porubský, 2007)
- *Pedagogical communication of teacher*s. This research focus, which originated in the late 1970's and early 1980's, has found a very pragmatic application in teacher training; this example clearly shows how research results can serve for the development of a science as well as the preparation of new specialists for its practice. (Gavora, 2007)
- *Professiographic research on teachers* has appeared repeatedly in an international context since the 1960's; although it is inspiring in many ways, its problem lies in the fact that across the teacher categories according to level of school education, these findings differ to such a degree that it is impossible to draw general conclusions from the results; on the contrary, this diversity should be utilized for each specific teacher category. (Seebauer, 1997; Blížkovský, Kučerová, & Kurelová, 2000; Urbánek, 2005; Fülöpová, 1999)

- *Educational needs and teachers, society and school management expectations of continuing education* and the education needs of "in-service teachers". Mainly in connection with international documentation concerning further and life-long or continuing education, these are becoming a traditional part of life-long learning activities, as they offer a more descriptive, rather than causal or correlative form. (Pavlov & Valica, 2006)

Psychological Research on Teachers. We can briefly say that while the pedagogical orientation of the research on teachers concerns rather the phenomenal, behavioural and pragmatic sides of the profession, from the psychological point of view, we examine problems that struggle to systematize the issue or examine personal aspects specific to the personality of a teacher, whether *ex post* (thus concerning those entering the profession) or *pro future* (concerning what the phenomena cause or what effect is to be expected). Here we need to point out that psychological notions, phenomena or features are examined by non-psychologists, very often by means other than psychological research (diagnostic tools). From a multifarious range we can quote the most frequent ones: typology of teachers and a teacher's personal characteristics, professional contentment, creativity, critical thinking, stress and endangering factors (burnout, mobbing, bossing, etc.), feminization – problem or standard, attitudes towards various personal and professional phenomena, socio-psychological phenomena and a teacher's relationships, such as professional satisfaction, a teacher's status as a person, profession etc.

Sociological Research on the Teaching Profession Group. Typically, the subjects of sociological research are large research groups: in this case groups of professions. The results of sociological probes and the findings even of extensive international studies, such as those of the OECD, are becoming the basis or rather tool for comparison in other research aims. They also become the source (often interpreted in a very unfortunate way) of education policy, for the evaluation of education results, and for the formulating of performance standards. An example of these quite unfortunate interpretations can be given by international comparisons which work with phenomena stripped of any other context (national, culture-specific etc.). These comparisons then become the basis for the constructing of international standards or reforms without a pedagogical and historical context that is subject to adequate examination (e.g., the transformation of teacher training into two levels of study – Bachelor's and Master's – without the aim of retaining the national particularity of the non-segmented training of teachers at Master's level that has a tradition of more than 50 years in our country).

- *Demographic research* on *teachers* observes full-area occurring phenomena concerning teachers as a profession group in relation to the population and its demographic characteristics: residence, education structure of the population, number of families, age, schooling, family-member traditions, the number of representatives of the teaching profession against other quantitative indicators etc. (Education at a Glance, 2005)
- *Professiographic research* studies the structure of work activities for the purposes of human resources management, acting as an applied discipline for the determining of work performance and work content. However, without an analytic pedagogical examination they have merely the character of insufficiently specified sample of a day or week, which lacks such associations like the nature of the profession, the transferring to the teacher's professional training of the needs of a changing social situation and problematic phenomena in society. (*How much time...,* 2008; Hilsum & Cane, 1971; Landert, 2006; McDaniel-Hine & Willower, 1988)
- *The working conditions of teachers* are these days considered the "Cinderella" of research aims. The teacher is expected simply to adapt to the environment of the school and to act as a participant in change, implementing the slogans and messages of reforms and transformations. Yet there is no real research on the school environment, from either the technical or material point of view, nor in the social and professional sphere. The fact remains, though, that apart from the accent on technologies, in terms of working conditions the schools show no change; this applies to the education process, working aids, division of labour, collegial cooperation and professional support. From this perspective, the teaching profession remains in the same state as it was during the initial formation process at the end of the 1960's, prior to the entry of de-professionalization, or at the end of professional autonomy development. (Walterová, 2002)
- *The Social Status of the Teaching Profession*. Profession scales are a very popular theme in arguments concerning the underestimation of the teaching profession (pay, social acknowledgement, leave). At the same time they are also applied to the proving and supporting by argument of how necessary the moral and economic renaissance of the profession is. I would like to draw attention to the fact that the teaching profession is highly regarded as an occupation that makes a social contribution, although seen from the perspective of financial rewards its real value is at the very opposite end of the scale. Another perspective is even more interesting: at the higher level, the teaching profession is held in higher regard by other professional groups than by the teachers themselves – i.e. they view themselves as being in a position worse than that perceived by members of other professions. This is quite an alarming fact in terms of the forming of a profession's identity, which we would like to build up and develop with the teachers through relatively thorough knowledge gained by the study of the above-mentioned research. (Hargreaves et al., 2007; Kariková, 2004)

The point of intersection between the sciences of pedagogy, psychology and sociology lies in the knowledge of, innovation in and development of the profession. Analysis of the specific *professional activities of a teacher* is the subject of a professiography of the teaching profession, which shows at what time and under what load the teacher performs which activities and what the level of their expertise is. There is a significant difference between the activities teachers perform, and they depend on various factors, such as type and level of the school, specific characteristics of the teachers who teach individual subjects, the time of the day, week or school year.

The outcome of this research process with pragmatic utilizability is a teacher professiogram, in our case of a primary education teacher. A *professiogram* is defined in literature as a synthesis of the basic pieces of knowledge on the work and a summary of all its key characteristics (Kohoutek, 2002). A professiogram includes two relatively independent components:

An analysis and a description of the actual profession is a written report rendering a profile of the job. It describes the classification of the job in the organizational structure (superordinate and subordinate position of the job), the purpose of the job, the key, specific and basic objectives, responsibility and power, the means of work and tools used, performance standards, working conditions (e.g., working routine, working hours, workplace, working environment etc.).

Specification of the requirements put on the job holder is a written report providing a profile of the person having the competence (professional, social and emotional) to perform the job in question. It is actually a profile of a person's capabilities and qualities. It includes: qualification and education, specific abilities, practical experience, physical and mental competence for the job, dispositions, interests etc. When processing this product we have to keep in mind that it should define the requirements placed on the person; in no case should it describe an ideal employee. That is why it suitable to define requirements as essential (standard) and preferred.

When preparing a specific type of professiogram it is necessary to distinguish between the purpose and the level of professiographic analysis. Professiograms designed for professional information and professional orientation are called *classification professiograms* and the professiograms used as a basis for further detailed study within one profession are called *analytical professiograms*. Professiographic research with an analytical approach uses methods of induction focused on reflection of professional activities during as well as outside the teacher's working hours (Kohoutek, 2002).

Professiographic Research from the 1970's to the 1990's

Although professiography is a new topic, older literature, too, deals with the topic of teacher activities.

In the 1970's the area of research on professional activities in general was in the Slovak context covered by several authors including Baláž (1973), Špendla (1974),

Januška (1979), who tried to summarize the requirements placed on the teacher's personality and the distinctive features of the teaching profession. Špendla (1974) listed them in a well-ordered professiogram (p. 27–30) in the publication "Teacher and the Teaching Profession". In the outline of his professiogram (a product of its time) we find items like "scientific ideology, expert preparedness for Marxism-Leninism" etc. Baláž (1973, p. 124–125) used the term "focusing the teacher's activity" to describe professional activities. Despite the ideological background, this research (Baláž carried it out in 1971/72) acts as a valuable source of learning for the profession within a historical context and for the observing of changes in profession development. Januška (1979) developed a professiogram of the teaching profession, drawing on research in the defining of six basic levels which in his opinion were necessary for successful performance of the teaching profession: physical preconditions, personal qualities, relationships teacher–learner, teacher's didactic abilities, social-political level, professional consciousness.

Professiographic Research after the 1990's in the Context of Eastern Europe

After 1989 the development of modern professiography for the teaching profession gained a lot of support. Seebauer (1997) published an empirical study exploring the aim of recording daily work in a school class (work methods, temporal aspect) and the specific workload of teachers in selected areas of Austria. In the Czech Republic, Kurelová (1998a) and Vašutová (2007) performed this kind of research and Blížkovský, Kučerová and Kurelová, a Czech-Slovak-Polish collective of authors, published (2000) *Středoevropský učitel na prahu učíci se společnosti 21. století (The Teacher in Central Europe: On the Verge of Studying 21st Century Society)*, which analyzed specific professional activities and working conditions among teachers at the 1st, 2nd and 3rd levels of school; this was the most important international research performed to date in the Czech Republic, Slovakia and Poland. A pedeutological comparative professiography as a primary research method was complemented by special questionnaires and examination by international experts. 1,100 voluntary teachers participated in the research and the research team processed 3,300 records of teachers' routine working days in three countries. The research provided authentic insight into the contemporary teaching profession, and at its end seven prospective reform strategies were specified. In Slovakia, Fülöpová (1999) was the first to attempt to produce a professiography of a teacher; the results were published as Professional Activities of a Teacher in Slovakia. This effort has proved inspirational as a research tool, and we have modified it in our pre-research examination and particularized it for use in research on the primary education teacher.

Theoreticians of professiographic methodology techniques indicate several factors which need to be considered during professiographic research. According

to Prášilová (2007) there are risks connected with the degrading of the validity of research findings and the discrediting of the reliability of the research methodology and the research tool:

- The school, the institution and environment for professional performance, finds itself involved in a dynamic process which is subject to constant change. That is why we need to regard the results of the professiographic examination only as one of many sources reflecting real teachers' activities.
- A teacher's performance depends on the length of his/her school experience. An individual's work performance improves in line with the length of his/her school experience. This does not mean that a lower time coefficient of performance affects the performance itself. On the other hand, a professional's lapsing into routine is accompanied by a lowering of the time coefficient; many activities dwindle, especially those not "directly indispensable". This can, and often does degrade professional fitness; there may, for example, be a decrease in or even the full absence of self-study, knowledge development, widening of one's professional horizons, etc.
- Professiographic measurement in a way reflects the specific environment in which teachers work (school culture, type, location etc.). This needs to be taken into account during the generalization of outcomes and differentiation of the typical vs. specific professiograms.
- The course of the school year, variability of the individual teaching professions (primary school teaching, secondary school teaching, etc., but mainly differences within the scope of the jobs of primary and secondary teachers). There is no doubt that the individual categories deserve independent examination, because teachers' activities show diametric differences depending on students' age and teaching subjects.
- Differences between teachers can also occur, perhaps depending on the scope of their workload, which is legally defined by the labour standards; in real school practice varies due to many factors: unexpected activities, current events in the classroom, substitution etc.

Problems of researching the reality of professional performance were depicted by Průcha (2002) in his chapter *Teachers' work field: education and the related activities*. He draws attention to problems arising during utilization of professiographic methods and the creation of professiograms, since there are significant individual differences in the workload of individuals as well as differences between the individual teacher categories. What is more, research based on autoscreening creates another risk in the form of subjective perception of time and demands. The Swiss pedagogue Landert (1999), who performed professiographic research in the German-speaking part of Switzerland, also provides a very interesting analysis. He used the methods of autodescription (autoscreening) of teachers and a control interview held with teachers. For his research a representative sample of his country was prepared. From this sample he selected a sub-set of teachers who were willing to cooperate and meet the given requirements.

The procedure of activity autodescription went as follows: in two succeeding weeks the teachers filled out a form. The form kept a record of the activity time demands according to seven categories. Individual teachers recorded the time of their activities across different weeks, so that the whole school year was covered.

An inspection through an interview showed that only 20% of the teachers proved the concordance between the activities recorded by autodescription and the statements. In this, as much as 37% of teachers recorded a higher time load than actually measured, while up to 43% of teachers in fact worked more hours than stated in their records.

The experience gained from the research described above provides impulses for our research examinations. The effort to perform a valid mapping of professional activities in real fieldwork requires the usage of more methods, not only for purposes of validity checking, but also to capture various points of view on the problem. It is important to objectify the subjective records of the persons taking part in the examination. Using an external observer is not the only nor the ideal method, as the natural environment and activities lose their spontaneous character and we face the question of whether we are recording reality or an exhibition.

Inspirations and Tasks for Research on the Profession of Primary Education Teachers

From the above it is more than obvious the topic is very inspirational, that it offers problems that experts engage with very intensively. Through the APVV-0026-07 project titled *The Profession of the Pre-primary Education Teacher and Primary Education Teacher within a Dynamic Concept* we try to enrich this topic with new knowledge. To recapitulate: What is the research on teachers lacking? From the perspective of the topic Research on Teachers – the need for interdisciplinary topics on teachers, so-called big topics and the merging of large interdisciplinary research teams.

If the object of pedeutological research is the teacher and the teacher's pedagogic deeds, personality, attitudes, opinions, expectations, social status and acceptance by the social milieu, students, parents, as well as by the expert public, the question is: *Where is the "blank spot" on the explorer's map?*

We have identified several subject areas, although a generally accepted impression suggests that everybody actually knows the teaching profession very well. However, do we really know what the work and activities of the children's teacher include when we speak of a teacher that guided the way of every one of us during the early years of our education? Seemingly useless questions – after all, these are the very professions we prepare and apply study programmes for, and we change and update them relatively often (up to 4 times in the last 15 years), we write for them and about them numerous studies and books. All of us who deal with these professions want with the best intentions and conscience to add to their training the aspects we consider the most useful, up-to-date and relevant. At the same time we would like to keep

the traditional nature of this profession, which apart from the function of mediating knowledge and developing children's personalities has the character of a cultural intermediary. The question might also read thus: Why do changes in teacher training programmes occur so frequently? Is it because someone dictates them? Someone who knows the situation so well that he/she tells us to make the changes together with the steps we should take? Is it because the existing programmes are so bad? Who reached this conclusion and what did he/she research? There may be even more questions, yet we need to point out what is essential, that there are many reasons for one's actions, but what currently is not mapped at all, is the reality of the profession, the reality of teachers' work. During the formulation of the research aim we asked ourselves: what is the nature of the job we prepare our students for, what does this job include? Many are quite sure about this, yet when we ask very specifically, even the teachers themselves have their doubts: Indeed, what is it that I do the whole day at school? Well, I teach... but what are the activities? In embarrassment they tend to enumerate the working operations; like laymen they name the work they do every day for children and society. It is these very opacities that led us to put together this research focused on the least empirically examined areas of professiographic research:

- The professions of early education teachers
- Recording particular professional activities in reality
- Categorization of activities: standard and non-standard

Based on the findings, the objective of this research is to compose a professiogram for these teacher categories.

Research on the Primary Education Teacher – Aim and Findings

The aim of the research presented was the finding and time/functional analysis of professional activities. The process of finding was performed through identification by the participants within the process of educational practice – through the procedure of the professiography of primary education teachers. The primary research issue was specified using the following questions:

1. How do the primary education teachers identify the professional activities within the real conditions of teaching service? (partial research results: Tabačáková, 2009)
2. What is the structure of primary education teachers' professional activities within the real conditions of teaching service in relation to professional standards?
3. What is the primary education teachers' real performance at work within the real conditions of teaching service?

In our research we monitored praxeological substance and meaning to create a draft of an analytical professiogram for the position of primary education

teacher. The structure of the professiogram presented is based on the concept of specific professional activities of the primary education teacher in relation to the professional standards which are already legally established in the real practice.

Research objectives

The primary objective of the research was *to identify the specific professional activities of primary education teachers within the real conditions of teaching practice, to record and discover their structure, and to determine the ratio of particular activities in relation to the full professional performance*.

Here we present a summary of partial findings reflecting only the overall structure of professional activities, load according to length of school experience and weekly profile. (For complete findings, see Kasáčová & Tabačáková, 2010; research report VEGA 1/0953/08).

Reflecting the research objective, we applied a complex research strategy combining quantitative and qualitative processes during the analysis of phenomena. We further specified the primary objective in several partial objectives, which were divided into areas according to the character of data interpretation:

Partial objectives

1. The professional activity profile of primary education teachers is

- to illustrate the structure of activities and their average duration in relation to week, working week, working day etc., and to determine what the professional activity profile of the primary education teachers is like during the working day;
- to determine how the professional activity profile of the primary education teachers varies during the working day, depending on the seasonal period of research being monitored;
- to determine what the professional activity profile of the primary education teachers is like during the working week (Monday to Friday);
- to determine how the professional activity profile of the primary education teachers varies during the working week, depending on the season period of research being monitored;
- to determine what the professional activity profile is like during days off (Saturday and Sunday);
- to determine the profile of professional activities performed after 4.00 pm;
- to determine how the profiles of all examined categories vary for all the primary education teachers' professional activities depending on the length of the proband's school experience.

2. The time load of primary education teachers:

- to determine how the time load of primary education teachers varies depending on the research stage being monitored;

- to determine how the time load of primary education teachers varies depending on the particular working day;
- to determine how the time load of primary education teachers varies depending on the length of their school experience;

3. Qualitative description and analysis of professional activities from the selected categories:
- to determine which activities are regarded by the primary education teachers as extracurricular professional activities connected with the profession;
- to determine which activities are performed by the primary education teachers beyond the framework of the activity structure provided by the professiography sheet and which the teachers include in the "other professional activities" category;
- to determine which one-off activities the primary education teachers perform from March till October (untypical activities - not present in common daily practice).

The main phase of the research was carried out in 2009 in two stages. *During the spring stage* we captured 14 days in the months of May and June; *during the autumn stage* we captured 14 working days as well as days off work. The research set included in-service primary education teachers, who in terms of the issue under research are considered to be insiders. An insider can be defined as a person who is highly cognizant of the issue and knows the ropes of the research area as well as the reality that is the actual subject of the research.

The Strategy of proband recruitment and administration of research tools

The information required from each of the probands was so complex and extensive in terms of the keeping of a daily record that the process of recruiting teachers was very demanding for both them and the research team. For this task we were able to cumulate two grants awarded by the APVV and VEGA agencies within two concurrent projects. We used an "avalanche" system for recruiting the co-operation of the probands (Wright, 2008) within the PAR procedure. The first level of co-operators included members of the VEGA 1/0593/08 and APVV-0026-07 project research teams. Both projects involved the formal education activity *Training of teachers with the role of a researcher,* which focused on training the second level of co-operators-teachers-researchers, giving us a very solid advantage during fieldwork. Apart from the research-methodological knowledge and skills, these participants acquired the instructions, guidelines and competences to lead other probands during the research – the third level. The objective for course participants in the initial stages of research was to find co-operators. They also received instructions on how to use the research tools and provided contact and means of communication with the research team. They submitted the completed research tools and handled the distribution of the next tools.

The first and second phase included 124 primary school teachers. A proband completed 14 professiography sheets during each phase, covering 14 recorded days in the life of each teacher during which he/she performed professional activities. The days and weeks recorded thus build the set of the research for examination, comprising a total of 2,520 days, where 1,800 days (71.43%) applies to working days and 384 days (28.57%) to the weekend.

Table 1
Profile of the set of the analyzed captured day images for examination

	working days		weekend		Total	
Number of examined day images	∑	%	∑	%	∑	%
Spring stage	960	71.43	384	28.57	1344	100
Autumn stage	840	71.43	336	28.57	1176	100
Total	1800	71.43	720	28.57	2520	100

Research sample profile

At the time of the collection of research data, all probands had a master's academic degree in the relevant discipline. The research sample consisting of 124 probands included one female headmaster, four female deputy heads, 115 female primary teachers and 4 male primary teachers. These data might lead to distortion of the data acquired, albeit only marginally, when one takes into account that these non-standard members of the profession comprise only 4.3%. The low proportion of male respondents did not allow us to perform an inter-gender examination. The probands' average age was 40.38 years, with ages ranging from 24 to 56 years. The average length of our probands' school experience was 17.71 years.

Before proceeding to the interpretation of the research findings, it is necessary to describe the data analysis process and the approach to the statistical processing of data. The research strategy of our professiographic research features several particularities:

- The method of data processing influenced the selection of a method of data collection using the autorecording of work activities. In this process the primary education teachers kept a record of all the activities performed during their working hours as well as those performed away from the workplace. This means that the teachers recorded all their activities, including those beyond standard duty but whose performance is governed by labour rules that apply to employees in the teaching profession.
- Taking into account theoretical knowledge, research findings and empirical experience, and the fact that the work performance of any worker can vary depending on the season, we carried out the research in two phases (spring and autumn) in order to guarantee the higher objectivity of the data acquired.

- Although we are fully aware that the time spent by teachers on professional activities can vary depending on the school grade the teacher works in during the year, these features were not monitored and the findings are interpreted from a global perspective.

The research instrument was very specific in its structuring (see Babiaková & Tabačáková, 2009). In four of the categories, the teachers were given pre-formulated professional activities with the instruction to fill in the number of minutes in a one-hour interval, which was delimited from 7.00 am to 4.00 pm and from 4.00 pm till the late evening hours. These categories did not allow the possibility of filling in any other activity which the teachers might think should be recorded. They did not have the option of a corresponding category despite the fact that they performed the activity during the monitored day. We realized that the respondents might be missing this option and that is why they were provided with the (non-structured) F category "Other activities", where they could freely write in an activity they considered worth registering. These activities then underwent analysis and categorization. The method of classification and categorization was applied also to the (non-structured) E category "extracurricular and public activities connected with the profession".

Since the task of the research insiders was to estimate and record in the most objective way the number of minutes spent on the professional activities during the day, all numerical data presented represent estimated average times for particular categories (working day, working week, Saturday, Sunday etc.) calculated based on the sum of minutes for all probands in the spring and autumn phases of research and then rounded into whole numbers.

With the first questions, which had the nature of a basic survey for the acquiring of descriptive data, we worked with open presumptions. As regards the research question concerning the average weekly time of the primary education teacher's professional activities, we formulated a presumption: The time primary education teachers spend on all professional activities during their working hours within the working week will correspond (+/-5 hours) to the usual weekly working hours of an employee in the teaching profession (37.5 hours). Apart from the fact that the weekly amount of working hours is defined by the applicable law, the time teachers spend on professional activities is regulated individually by each school institution. This regulation is performed by the labour rules of the school's teaching employees and by the central collective labour agreement. The terms of the agreement can then be modified again specifically for a particular school facility. This also determined the selected time range of data collection, which meant recording the whole week (Monday to Sunday), where the daily duration was set by the interval from 7:00 am until late evening. The time after 4.00 pm was not precisely specified by hours. This time range allowed us to process the findings from several perspectives. Table 2 includes the average times processed for the categories of the week and working week of primary education teachers from two aspects; namely when counting in times from the whole day and subsequently when including times in the interval

from 7.00 am to 4.00 pm. When assessing these categories we allowed for two more approaches. The first approach includes the number of minutes calculated from the average times of all the activities recorded in the professiography sheet; in the other approach we processed only the times for activities a1–a25. The reason for the use of this system was the already combined character of the research tool, specifically its structural form, which meant that the numbers of minutes the probands stated during the activities in the non-structured categories E and F could be perceived by the teachers from a different angle (concentration on one activity etc.). At the same time we must explain that the activities within these categories were not considered to be a part of work performance, and in this light the category was calculated according to the purpose of data processing.

Table 2
The average weekly working hours of a primary education teacher

	a1–aF (min. / week)	hr. / week	a1–a25 (min. / week)	hr. / week
week (Mon–Sun)	2614	43.56	2375	39.58
working week (Mon–Fri)	2354	39.24	2164	36.06
week (Mon–Sun), 7:00 am – 4:00 pm	2063	34.38	1895	31.59
working week (Mon–Fri), 7:00 am – 4:00 pm	1957	32.61	1815	30.25

Table 3
Average times of a primary education teacher's professional activities during the working week

Chart shortn.	Professional activities	whole week (min.)	%	working week 7:00 am – 4:00 pm (min.)	%	difference: performance outside working hours (min.)	%
a1	projecting and planning instruction	184	100	100	54.26	84	45.74
a2	Checking if a pupil is prepared for instruction	96	100	96	100	0	0
a3	activities inducing pupil activity and motivation	127	100	127	100	0	0
a4	presenting and explaining new teaching content	128	100	128	100	0	0
a5	managing and coordinating learning activities of pupils	317	100	317	100	0	0
a6	testing learning results	114	100	114	100	0	0
a7	assessing in contact with pupils	101	100	101	100	0	0
a8	preparing and implementing the IEP (Individual Education Program) for pupils with SEN	42	100	38	91.09	4	8.91
a9	inducing and addressing educational situations	78	100	77	98.18	1	1.82
a10	correcting and evaluating pupils' work	109	100	80	73.43	29	26.57
a11	creating teaching materials, aids etc.	96	100	51	52.62	46	47.38
a12	activities connected with diagnosing pupils	40	100	36	92.01	3	7.99
a13	meeting and cooperating with parents	44	100	37	85.06	7	14.94
a14	keeping pedagogical documentation	72	100	67	92.22	6	7.78
a15	Consultation on pupils with teachers and other experts	52	100	50	96.13	2	3.87
a16	consultation sessions and meetings at school	48	100	46	95.81	2	4.19
a17	supervision in the classroom, corridor, school lunchroom	171	100	169	99.16	2	0.84
a18	working on methodological, consultative and school bodies	15	100	13	87.41	2	12.59
a19	library management	8	100	7	91.88	1	8.12
a20	school club management	58	100	53	90.56	6	9.44
a21	keeping the school chronicle, album etc.	6	100	3	55.5	3	44.5
a22	teachers' room/teaching room management	20	100	19	96.78	1	3.22
a23	participation in education	109	100	58	53.04	51	46.96
a24	self-study	126	100	26	20.93	100	79.07
a25	teaching other colleagues	2	100	1	61.8	1	38.2
aE	extracurricular and public activities connected with the profession	66	100	45	68.24	21	31.76
aF	other activities	125	100	97	77.5	28	22.5
TOTAL (min.) a1–a25		2164	100	1815	83.88	349	16.12
TOTAL (hr.) a1–a25		36.06	100	30.25	83.88	5.81	16.12
TOTAL (min.) a1–aF		2354	100	1957	83.12	398	16.88
TOTAL (hr.) a1–aF		39.24	100	32.61	83.12	6.63	16.88

The average time spent by the primary education teachers on all professional activities during the week (working days and days off) is approx. 2614 minutes, i.e. 43 hours and 34 minutes. When compared to the research of Fülöpová (1999), in which the average time spent by the Slovak teachers (1st, 2nd and 3rd level) on all professional activities during the whole week (Monday to Sunday) was 2508 min, i.e. 41 hrs. and 48 min, this is 1 hour and 46 minutes more. This difference can be influenced by several factors. In our case these include the focus solely on primary education teachers, the very detailed structure of our research tool, and the types of professional activities that were counted into total time, because in the above-mentioned research by Fülöpová (1999) the average weekly time included the time teachers spent on commuting to and from school. We rejected this type of activity at the very beginning, since we do not regard it as a professional activity of a teacher.

We tried to find out how much the official working hours teachers fill with professional activities are dependent on the length of their school experience. There are statistically significant differences between these times, with respondents divided by the criterion of length of school experience. We formulated the following hypothesis:

We presume there is a statistically significant difference within the time load of primary education teachers during the working week depending on the length of their school experience.

We presume that the group with the highest time load will comprise teachers with more than 30 years of school experience.

In this case we included only working hours from 7:00 am to 4:00 pm for all the professional activities a1–aF and then solely for the activities a1–a25.

To monitor the teacher's professional activities exclusively during the time from 7.00 am to 4.00 pm would not be objective and complete. Some of the standard professional activities necessary for the teaching profession are special in terms of the time they demand outside given working hours (e.g., projecting and planning instruction (a1), correcting and evaluating pupils' work (a10), production of didactic materials (a11), teacher's self-study (a24) etc.). Table 3 includes the average times for professional activities within the working week from two aspects, and these are presented in terms of their relative as well as their absolute frequency. At the same time it provides a calculation to show the difference in the time teachers spend on professional activities after 4:00 pm and later. The percentage shows the time division for particular professional activities within working hours, as well as in time off. The time differences between the particular professional activities were not tested statistically from the perspective of seasonality. As shown below, a significant portion includes time spent on these activities during weekends. However, when breaking down the activities into an average we came across a statistical error that averaged work performance using the two extra (non-working) days. That is why the work performance on Saturday and Sunday of selected activities, whose frequency was worth monitoring, was interpreted separately.

Professional activities a2–a7 are directly connected with the teaching process, and logically did not apply in the time spent away from the workplace. The teachers spend most time during the working week on managing and coordinating the learning activities of pupils. The second most frequent activity mentioned by the teachers is supervision; during the working week this comprises 3 hours on average. The probands reported almost the same number of minutes spent on activities focused on pupil activity and motivation and explanation of curriculum. Similar times are recorded for activities a6 and a7 focused on testing pupils' knowledge and their evaluation, while the time indicated shows that almost the same effort as put into explaining new curriculum details was put into testing pupils' knowledge and their evaluation. A substantial proportion of working hours within a week is saturated with activities focused on projecting, planning and preparation for the instruction process. Here we see considerable differences between performance during working hours and performance during time off the work. Time off involves activities like projecting and planning instruction, correcting and evaluating pupils' work, creating teaching materials, aids and visual demonstrations, working on methodological, consultative and other school bodies, keeping the school chronicle, album etc., participation in education, self-study and education of other persons.

The work of a primary education teacher also includes activities a8 focused on preparing and implementing of the IEP – Individual Education Program – for pupils with special educational needs. This, however, is not a standard activity performed by each teacher (50.2% of teachers reported this activity in our research sample), and for that reason the reported number of minutes lacks explicitness when looked at through the average values. The average time spent on this activity solely by these teachers comprises c. 83 minutes a week, while from 7:00 am to 4:00 pm it is approx. 76 minutes. This is also related to the diagnosing of learners, on which 75% of teachers spend 53 minutes during their working hours. The time required of a teacher for the identifying of a pupil's evolutionary and individual characteristics and the psychological and social factors of his/her learning, and not least the occurrence of this with some teachers only, is very surprising. Other activities related to education (a13, a14, a15, a16) and their duration reflect the reality within a school. We find it very interesting that although teachers constantly report high workload in terms of administrative tasks, the records showed only about 70 minutes a week spent on these, which is definitely necessary for the keeping of standard teaching-related documentation. This works out at around 14 minutes a day, which is not unusual, and suggests that such tasks are unpopular from a subjective point of view.

Professional activities related to other teacher functions a18, a19, a21 (working on methodological, consultative and other school bodies, library and school club management) are specific and individual, thus making the reported values, acquired as average of times from all probands, merely statistics and from a logical perspective a nonsense. At the same time, we are not able to observe their regularity, as the teachers generally do not perform these every week. So in this

case it is better to consider using the ratio of the probands who recorded these activities. During the spring research phase the occurrence of the activity „working on methodological, consultative and other school bodies" was recorded by 32% of probands, while during the autumn phase it was only 26%. For this activity, they reported an average time of 50 minutes during the working week (even when including times after 4:00 pm). Library management during the spring phase was performed by only 12% of the probands (during the autumn phase it rose to 18%), whereby their average for this activity on working days equalled 48 minutes a week. Records in school or classroom books during the spring phase were kept by 16% of the teachers (in the autumn phase this went down to 13%), i.e. 41 minutes a week. Teacher's room/teaching room management is an activity not directly connected with performance of the teaching process. The teachers spent around 20 minutes a week on this activity. Another activity that demands a teacher's time during the working week is school hobby club management. The probands spend almost an hour on it, which in our opinion is an optimal value necessary for preparing and carrying out this activity.

Table 4
The average performance of professional activities during working hours in relation to the length of the teachers' school experience

Length of school experience – interval	< 10 N=30	SD	[10, 20) N=70	SD	[20, 30) N=50	SD	≥ 30 N=22	SD	test (P)
Working week a1–aF (7:00 am – 4:00 pm) (min.)	1810	717.5	2141	1123	1957	795.9	2144	920.6	0.64209
hrs. / week	30.2		35.7		32.6		35.7		
Working week a1–a25 (7:00 am – 4:00 pm) (min.)	1633	668.3	1972	1145	1780	740.4	1960	874.3	0.59052
hrs. / week	27.2		32.9		29.7		32.7		

SD = standard deviation

The professional activities a23–a25 were introduced in order to record the time teachers spend on their education and self-education. The primary education teachers spent in the whole week an average of 109 minutes participating in education. This output includes 48% of teachers during the spring phase and only

40% of teachers during the autumn phase. If we are to calculate the mean value solely for the data provided by these probands, we come to the conclusion that the teachers spend 247 minutes a week on educating themselves (c. 4 hrs. for the entire week, divided by half into working hours and time off work). The teachers spend in the whole week approx. 126 minutes on self-study (2 hours, mainly outside their working hours). The education of colleagues is a special activity which during the spring phase was performed by 7% of the teachers and in the autumn phase by 11% of the teachers, resulting in very low average values. This is not a standard activity for most teachers. In reality those who educate colleagues reported performing this activity for c. 20 minutes a week, divided by half into working hours and time off work. The profile of the professional activities of primary education teachers is complemented by extracurricular and public activities, which will be interpreted in detail within the monograph. (Kasáčová & Tabačáková, 2010)

The teachers with the highest time load during the working week are those with 10–20 years of school experience and senior teachers who have been teaching for more than 30 years. As the findings do not prove unambiguously that the highest time load is recorded by teachers with more than 30 years' school experience, we cannot accept the hypothesis H_{9b}. Younger teachers with not more than 10 years' school experience face the lowest time load. This finding corresponds with the results of research performed by Urbánek (1999), who also worked with the length of monitored respondents' school experience and discovered that teachers with 5 years' experience or less reported the lowest time load, while the most experienced teachers (with more than 31 years' experience) reported the highest time load. When comparing the youngest teachers with the oldest, there is a difference of more than 5 hours in working time. Such a time layering might be influenced by the probands' private lives – which are a topic for a socio-psychological study. We can only make the assumption that the young people are starting families and thus spending less time on their work. However, the reason for this might also be the fact that the data acquired was calculated based on the teachers' subjective assessments. This could have led to overestimation of the time of performance, as Landert (2006) points out.

We measured the average time spent by the probands on professional activities within one working day, taking into account the above criteria.

Table 5
The average duration of the working day of a primary education teacher

Activities performed during monitored time	a1–aF (mins. / week)	hrs. / week	a1–a25 (mins. / week)	hrs. / week
working day till evening – hour unspecified	471	7.85	433	7.21
working day – working time (7:00 am – 4:00 pm)	391	6.52	363	6.05

We can assume that the working time of the research probands in one day is on average 391 minutes, which equals 6 hours and 31 minutes that are spent on performing all the monitored professional activities. In terms of the legal definition of the working time per one day (7.5 hours) this is approx. one hour less. However, this capacity fills the workday without a time limitation (7 hr. 51 min.), and thus we can assume that the primary education teachers continue to fill working-time capacity after 4.00 pm and into the evening. In any case, we can state that the load of teachers monitored during the individual activities does not dramatically exceed the usual working-time capacity. Hence the arguments claiming that teachers are overloaded are not justified; if they are, then this burden is caused by factors other than performance, such as bad organization, psycho-hygiene etc. This again might be a topic for further research.

In spite of the different times recorded by the four groups of respondents divided by length of their school experience, the testing did not prove in any of the categories that this variable had any influence on the time spent by the respondents on performing professional activities during the working day. It is very interesting to follow the shape of performance curves throughout the working week for the particular groups of respondents. Although these differences are not statistically significant, there is a certain level of differentiation in terms of length of school experience (Figure 1).

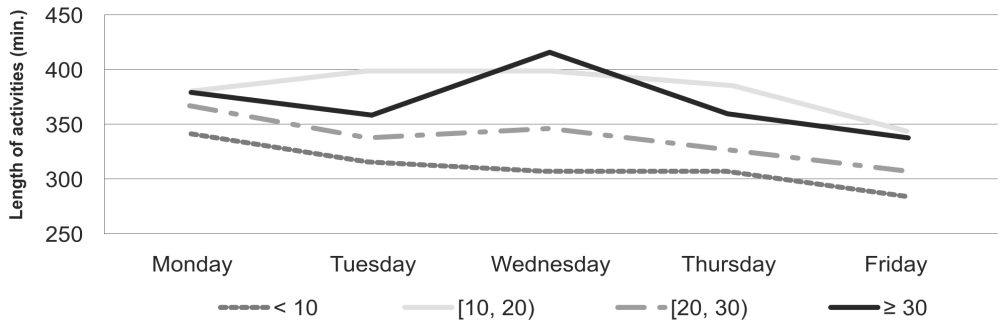

Figure 1. Performance curves within the working week and length of school experience (act. a1–a25; 7:00 am – 4:00 pm)

It seems that the teachers with the lowest time load are those with up to 10 years' school experience. Their performance curve declines evenly as the week progresses from Monday to Friday. A very similar profile of the weekly performance curve can be seen with teachers with 20–30 years' school experience, with insignificantly higher performance on Wednesday. The profile that best matches the general working week profile is the performance profile for teachers with 10–20 years' school experience, where performance is relatively the most stable of all. The most significant differences between performances during working days are seen in teachers that have been in service for more than 30 years. The day with the significantly highest time load is Wednesday, but this only applies for senior teachers.

The Significance and Objectives of Professiographic Research

In general, the main objective of professiographic research is to produce, through professiographic methods, a *professiogram* as a structure compilation of a professional's activities and the occurrence of these throughout the day/week, with the possibility of comparing seasonal differences. Therefore it is recommended that images of several days are captured at different times of the year.

The importance of a professiogram is founded in the possibilities for its utilization (supplemented as per Kurelová, 1998b, p.37).

- for human resources management – setting the content of a job description, inspections of classes and employee assessment
- for the pedagogical employee – selection for standard and specialized posts related to work positions
- for defining and completing evaluation criteria
- for managing the adaptation of novice teachers and their integration into the continual education system in connection with the evaluation criteria
- for the career development of teachers, formulation of priorities within teaching staff development and their goal-specific education
- for the modification of job tasks for specialized functions, following on from performance specifics within the conditions of a particular school and classroom
- for the area of teachers' undergraduate training – creation of study programmes and their evaluation
- for the specification of the content and objectives of teaching practice during studies and the setting of required performance capacities for students of the teaching profession during and at the end of their training for the profession
- for the formulation of professional standards at the national level and performance standardization at the level of schools
- for the monitoring, evaluation and remuneration of employees

Conclusion

In the above we present the findings of part of professiographic study that was recently carried out. We provide possible methods of application for actual practice and indicate potential drawbacks of these research types. In conclusion, we need to point out that research on the profession of teacher (in this case the primary education teacher) is closely connected with a discussion that has been held for decades about *Profession vs. Craft, Art or Mission*. While specialist literature and journalism continues to show a certain oscillation between trends of how the teaching profession is perceived by an other than strictly professional eye, professiographic research proves that it is a profession built on a requirement for clear structures for the defining of professional activities. Absence of these

boundaries would always leave the process of professionalization (Spilková, 2004; Walterová, 2002; Kosová, 2009 and others) open to doubts in its very essence: Do we know what teachers do when "teaching"? We need to answer this when constructing a concept of the profession and for training for the profession, for defining the personal qualities required of its members, and when creating the profession's code of ethics. Professionalization in occupations, including the job of teacher, is given by the concept of the profession, requirements for qualification and training of its representatives, personal qualities and ethical requirements placed on professionals and their performance (Troman, 2007). That is why research into the profession, its standardization and converging of theoretical and practical concepts including professiographic research can help bring the process of professionalization from academic discussion a step closer to reality. Perhaps this research, as a part of professiographic research focused on in-service teachers, will place a new focus on today's primary school teachers as experts in early education. In common with other analogical researchers who have followed this topic more closely (Urbánek, 2005; Blížkovský et al., 2000, Fülöpová, 1999), we have drawn several parallels. In their general view of professional activity profiles, the findings of these studies are consistent. However, our research offers a more thorough and plastic image of the teaching profession. It is unique in its detailed focus on the profession of the primary school teacher, which has been marginalized in existing studies.

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Contact information
Bronislava Kasáčová
Department of Elementary and Pre-School Pedagogy
Pedagogic Faculty
Matej Bel University
Ružová 13
974 11 Banská Bystrica
Slovakia
bronislava.kasacova@umb.sk

BOOK REVIEW

FRED A. J. KORTHAGEN, JOS KESSELS, BOB KOSTER, BRAM LAGERWERF, & THEO WUBBELS

Linking Practice and Theory: The Pedagogy of Realistic Teacher Education.

London: Lawrence Erlbaum associates, Publishers, 2001. 312 pp.

The focus of Korthagen's book lies with the singular fundamental problem of teacher education not only in the Netherlands or the Czech Republic but in general: the gap between theory and practice that is apparent in the traditional approach to teacher education. In fact, the authors go so far as to define and offer a new *paradigm* or *pedagogy* of teacher education, one that builds on a few solid and well negotiated principles. The most important of these is *reflection*. Learning to reflect on their behaviour and action in the classroom – first with the help of teacher educators and later independently – is an important step for prospective teachers (and, as a matter of fact, many teacher educators) in the quest to bridge the gap between theory and practice. The authors take great care to explain the theoretical foundations of their approach to teacher education, and at the same time build their conclusions on the findings of empirical and evaluative research carried out by themselves and by others. They also offer examples of concrete techniques that can be used to promote reflection in teacher education programmes.

In the introductory chapters of the book, the topic of the book is presented and some theoretical concepts are introduced that help explain the type of knowledge that the realistic approach to teacher education aims to develop in future teachers. The authors use Plato and Aristotle's distinction between knowledge that builds on understanding abstract concepts and relationships between them – or *episteme* – and the practical wisdom that builds on everyday experience and is rooted in concrete examples – or *phronesis*.

Chapter Three presents the historical developments that led in the Netherlands to the designing of a teacher education programme that was based on the ideas behind the realistic approach. The programme is described in detail in order to provide a clearer idea of how theory and practice were combined. To explain their views on how student teachers process information, the authors present the concept of gestalt and explain what role gestalts might play in teacher development.

The fundamental building block of the realistic teacher education approach is introduced in depth in Chapter Four. The authors emphasise the importance of

reflection on one's experience in the process of professional learning. They make use of the model of the so-called ALACT cycle of 1) *action*, 2) *looking back on the action*, 3) *awareness of the essential aspects*, 4) *creating alternative methods of action*, and 5) *trial*.

Then the authors focus on the question of how to build a realistic teacher education programme. Three basic principles are summarised that underlie the ideas presented in the book, as follows: 1) A teacher's professional learning will be more effective when directed by an internal need in the learner; 2) A teacher's professional learning will be more effective when rooted in the learner's own experiences; 3) A teacher's professional learning will be more effective when the learner reflects in detail on his or her experiences. The authors then elaborate on the consequences of these principles for the pedagogy of teacher education and offer concrete examples of how these principles are used in practice.

Evaluation studies were carried out that aimed at the realised teacher education programmes building on ideas presented in the book. The findings of these studies are discussed in Chapter Six.

One chapter of the book (Chapter Seven) is devoted to the process of mentoring, or, as it is called in the book, supervision. There is a summary of basic skills of a successful supervisor that are relevant for the individual phases of the supervisory process, as well as those that are not linked to a specific phase. These skills include empathy, genuineness, confrontation, making things explicit, and others.

The next chapter (Chapter Eight) takes the findings of empirical studies presented in Chapter Six and uses them to define characteristics of a reflective teacher. Four attributes of reflective teachers are formulated. As described in Chapter Eight, reflective teachers are capable of structuring situations and problems consciously, and consider it important to do so; they use certain standard questions when structuring experiences; they do not find it difficult to answer questions concerning their learning goals; and they can describe and analyse adequately their own functioning in interpersonal relationships with others. In the second part of the chapter, seven correlates of reflectivity are formulated on the basis of research findings, which include previous experience of structuring problems, a high degree of job satisfaction and better interpersonal relationships with students.

In Chapter Nine, the issue of promoting reflection in groups of teacher students is discussed. A five-step procedure is described for working with groups of students, and four concrete techniques are described that can be used even in large groups of students.

In the key chapter of the book (Chapter Ten), the important topics of the realistic pedagogy of teacher education are revisited and discussed in their complexity. The chapter builds on the previous parts of the book in that it offers a unifying view of the presented approach by defining a three-level model of professional learning. Three levels are distinguished (*the gestalt level, the schema level and the theory level*) and the relevance of the model for the process of teacher development is discussed.

The final chapters of the book focus on some specific aspects of implementing the realistic approach in teacher education. Of these, Chapter 13 is of great

importance, because it concentrates on the issue of preparing teacher *educators* for the implementation of the realistic teacher education programme. It may well be that the taking into account of natural resistance to change on the part of traditionally-minded teacher educators is among the most relevant aspects of the book for a Czech readership.

The book's main merit lies in the fact that it provides a new, clear and theoretically sound framework for dealing with a problem – i.e. the gap between theory and practice – that has been discussed in detail even in Czech professional literature on teacher education. The book does more than offer a discussion of the underlying principles; it also presents a number of very concrete techniques and ideas that have been tried and shown to bring the desired effects.

The new pedagogy of teacher education is approached from a general educationalist perspective, and throughout the book it remains a domain-general model (similarly to the ALACT model as well as the three-level model of professional learning). All these concepts are relevant for teacher education, irrespective of the subject matter and the specific nature of different educational contents. In reality, i.e. when genuinely reflecting on teaching, it is impossible to avoid content as teaching is *never* devoid of field-specific content. Whenever the authors use subject-specific examples, they draw on mathematics teaching and mathematics teacher education. Readers might find themselves wondering about applications in different fields (natural sciences, social sciences, arts and music, languages).

There is no doubt that many aspects of teaching are reflected upon in the same way, i.e. on the pedagogical or psychological level. However, should the reflection aim to deal in some depth with the content of particular fields, such aspects will emerge that cannot be easily abstracted to a meta-field level. From the general pedagogical perspective this may not present itself as a problem. It may be a problem for teachers in schools and for student teachers preparing for the teaching profession who aim to teach *something* to their students. This *something* is always embedded deeply in the content field and can only be abstracted – in order to be reflected upon – within the frame of the particular field (social science, foreign languages).

Bearing in mind specific ways in which teacher education is organised in their country, Czech readers might ask themselves the following questions: Are there any domain-specific aspects of realistic teacher education – e.g., springing from the different nature of educational content in the respective domains? What are the possible ways of furthering empirical research on realistic teacher education with respect to the trans-didactic perspective, i.e. building on teachers' work with the educational content and abstracting to the meta-field level?

The contemplating of answers to such questions in the Czech language may be supported by a Czech translation of the book (Jak spojit praxi s teorií: didaktika realistického vzdělávání učitelů), which is scheduled for publication by the Paido Publishing House before the end of 2011.

Jan Slavík & Petr Najvar

CONFERENCE REPORT

Cadivam International Symposium, Lausanne, Switzerland

CADIVAM (CAtégorisation DIdactique de Video de leçons de Mathématiques) is a working group of the Swiss Society for Research in Didactics of Mathematics (Société Suisse pour la Recherche en Didactique des Mathématiques). The group uses the TIMSS video corpus to carry out research on the categorisation of mathematics instruction. They also organise courses for mathematics teacher educators. The central theme of the Cadivam International Symposium, which took place in Lausanne from 23rd to 25th June 2011 on the premises of the Teacher Education School of the Canton Vaud (Haute école pédagogique du canton de Vaud), was the use of video in the education of mathematics and science teachers. Both practical experience of the use of video to educate pre-service and in-service teachers, including special software for doing so, and (partial) results of various research studies were presented.

The first day's presentations (held in French) included a welcoming speech by Guillame Vanhulst, the rector of HEP. The first keynote speaker was Professor Aline Robert from IUFM de Versailles, who in her speech addressed the issue of local and global perspectives in educating mathematics teacher educators. The symposium continued with a presentation about research in devolving and directive strategies in classroom management which draws on the TIMSS videostudy (Olivier de Marcellus, SRED Geneva). Two parallel workshops followed, giving practical ideas and presenting projects in a more detailed way. One of these (by a team from Grenoble University) was focused on beginning teachers of mathematics, the other (Lyon University) on the bridge between research and instruction.

The second day, held mostly in English, was opened by Professor Rosella Santagata from the University of California. In her keynote speech, she introduced the highlights of a large body of research findings that her team is building and also presented a framework that is being used at the University of California to educate mathematics teachers with the help of video. Six presentations followed, with topics ranging from the use of video to assess teachers' personality or competencies to the use of video to develop teachers' professional and content knowledge. An interesting point was made by Niels Brouwe and his team (the Netherlands) about the use of structured guides for viewing one's own videos in teacher education. The Czech Republic was represented by a team from the Institute for Research in School Education of the Faculty of Education, Masaryk University, which presented the latest advances in its Videoweb project, which combines the use of video e-learning. Two workshops took place on the second day. A team from the University of California presented a framework for the use of video in pre-service teacher education to highlight the issue of equity in class. In

the parallel workshop, an analysis tool for research and education was presented by a team from the University of Geneva.

The third keynote speaker was Kathleen Sturmer from TUM Munich, who presented the design of and findings of the Observe project, which aims to develop a tool for the assessing of pre-service teachers' professional vision. This presentation sparked an interesting and appreciative discussion about the uses, validity and reliability of such a tool. The last workshop, presented by a team from the University of Washington, concentrated on the use of videocases of professional development in mathematics to develop leaders' ability to foster the development of teachers' specialized content knowledge. The symposium was brought to a close by a general discussion in which the participants highlighted the inspiring nature of the symposium and expressed their thanks to the organizers.

The symposium succeeded not only in bringing together experts who share research interests in the use of video technology in teacher education but also in bringing together experts from different language backgrounds (French, English and German), which rendered the exchange of ideas all the more fruitful.

Eva Minaříková

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