

Educational psychology within teacher education

Maria Poulou*

University of Crete, Greece

In a context where the role of the teacher and teacher education are undergoing considerable change, the role of educational psychology in teacher preparation is discussed within a new framework. Educational psychology is now perceived as an inherent component within teacher training and professional development, having previously been an additional course and often considered irrelevant to teaching practice. The current paper discusses the relationship between educational psychology and teacher preparation. Educational psychology's contribution to teachers' professional development is delineated through the constructs of teachers' prior beliefs about teaching, reflective practice and self-efficacy, while its contribution to the improvement of teacher–pupil interaction is viewed through the lenses of instruction theories, social and emotional learning, special educational needs and classroom management. It is argued that through a productive dialectic dialogue between educational psychology and education, educational psychology provides the knowledge defined by its field to be utilized by teachers, whereas at the same time, teachers gain a wider reconceptualization of their practice.

Keywords: Educational psychology; Teacher training; Reflective practice; Self-efficacy; Classroom management

Introduction

The Lisbon Council, which has set a strategic goal for the European Union to become the most competitive and dynamic knowledge-based economy in the world, has highlighted the importance of the role of education and training. In this respect, teachers will be in the front line. Among other tasks, they will have to focus on the basic skills their pupils need in order to be active citizens, they will have to diversify their teaching methods to meet different learning needs and they will have to see their professional development as a lifelong learning experience (Romano, 2002). To face these new challenges, teachers will need support tools

*P.O. Box 400 69, 12 310 Agia Barbara, Athens, Greece. E-mail: mariapoulou@yahoo.com

and management strategies. In this new and complex situation educational psychology, the field of psychology most closely related to education, has a lot to offer. Educational psychology is now being called upon to prove its utility to teacher education and clarify the misconceptions concerning its relationship with education in general and teacher education in particular.

In recent years there has been much discussion about the relevance of educational psychology to teacher preparation. This has revolved around the content, i.e. how much theory educational psychology courses should cover without the risk of theorizing the field-based component of educational psychology and the practicality of teaching or devaluing the theoretical foundation of educational psychology. The teaching of psychology in initial teacher preparation has been mainly theoretical and excluded from the preparation for classroom teaching (Francis, 1996). In support of this, teacher education students frequently perceived an educational psychology course as irrelevant to their anticipated role. Thus, the need has arisen for educational psychology instructors to reconceptualize the structure of their courses and emphasize how psychological concepts and principles can be implemented in the classroom by prospective teachers. At the same time, teacher educators need to reframe educational psychology as an inherent component within teacher preparation and teachers' professional development and not as an additional course to be taught in teacher education courses. Although the value of psychological knowledge has not been questioned over the years, there is less agreement about the concepts relevant to teacher education (Woolfolk, 2000). This paper aims to examine the contribution of educational psychology in teachers' preparation. It offers an incentive to provoke discussions about the dual role of an educational psychologist and teacher educator, in a context where the teacher's role, teacher education and consequently educational psychology are undergoing many changes.

The relationship between educational psychology and teacher education

Psychology is one of the social sciences which has developed both as a theoretical scientific and professional practitioner field. This has led to tensions provoked by the 'science-to-technology' or 'pure versus applied' debates within psychology. Norwich (2000) made the point that there is a continuing problem in the relationship between psychology and education; he located this in the educationists' question as to what ideas and techniques should be adopted from psychology given the urgent practical needs in education. He offered four strategies for coping with this problem: (a) adopt a particular theoretical model from psychology, e.g. a constructivist model of psychology, and assume that this model can provide psychology's contribution to education; (b) adopt radical behaviourism and emphasize the training of certain educational skills; (c) opt for a purist philosophical conception of psychology, which does not preclude a particular approach but allows for various psychologies within the same framework; (d) turn away from psychology and expect home-grown ideas and research in education to lead the field of teacher education.

On the one hand, empirical findings can be intentionally employed to improve teaching. Indeed, according to Gage (Berliner, 2004), this is the goal of educational psychology. An understanding of the deeper processes in teaching and learning improves teaching and provides the profession with a scientific base. Increasingly, there is a belief that the cornerstone of providing professional practice rests on evidence-based guidelines for best practice (Fox, 2003). Educational psychology is an evidence-based profession, and it must be concerned with research in education. It is proposed that the research that will be most valued in society in the future is that which educational psychologists are almost uniquely qualified to carry out (MacKay, 2002).

On the other hand, the influence of educational psychology does not rely solely on the direct influence of research. Some kind of psychology will be used in the educational theorizing that takes place within teacher education. Teachers do not uncritically apply the psychological knowledge they already possess, they produce the knowledge from the educational field. Psychological knowledge at least provides a rationale and useful information which could guide educational decisions and teaching practice. Regardless of whether the educational psychology model is structuralist, functionalist, connectionist, gestalt psychology, operant conditioning, humanistic psychology, information processing or constructivist, educational psychology is primarily interested in understanding and improving the outcomes of formal instruction in classroom settings. Educational psychology seeks to better understand how people learn, why people learn, how the process of development occurs, how individual differences affect learning and development and how various learning outcomes can be measured accurately, as well as to clarify the basic purposes of education (Snowman, 1997). The application of psychological theories does not give a simple answer, but generates further discussion. Theoretical principles derived from the field of psychology do not have a significant role in education theory. They rather act as the rational foundations of education theory and provide a means of criticizing and extending practical principles (Norwich, 2000). The pedagogic character of this discussion, however, is not drawn from within the field of educational psychology. The effect of educational psychology in education depends on the degree of influence which teacher educators attribute to educational psychology.

Schoenfeld (1999) offered a compatible solution, by arguing that it is possible to consider research and applications in education as synergistic dimensions rather than as opposite ends of a continuum, or discrete phases of a 'research leads to application' mode (p. 14). We can explore theoretical issues in contexts that really matter and, when we work on important problems, we can try to frame them in order to make progress on fundamental issues. On the practical side, to improve teaching we need to understand it. On the theoretical side teaching is complex, highly interactive and a knowledge-dependent act. To do it 'right' demands very high levels of knowledge, skills and dedication, whereas in order to describe it, explain how and why teachers do what they do within the complexity of the classroom context requires a thorough understanding of human thought and action. Efforts aimed at understanding teaching and developing theoretical models of teaching inform teachers' professional

development and further influence teacher educators' pedagogical stance. Taken from this perspective, educational psychology is more than a mere university subject that should be learned by prospective teachers. It is an understanding of a specific psychological reality, combined with a positive attitude, keen interest and willingness for interpersonal interaction (Klimov, 1999).

Educational psychology's contribution to teacher education

Educational psychology's contribution to teacher preparation has been in evidence for at least the last century. The first author of a programme in psychology for higher education institutes was Rubinshtein, in 1936. He advocated the possibility of deepening the psychological training of the teacher and argued that the teacher educated in psychology would have a knowledge of the laws governing the subjective reality in education and would be able to foster his own self-education. His focus was on the development of a new field, the psychology of education of the individual, with pedagogical psychology, i.e. the psychology of instruction, as a main component. This field would represent a synthesis of disciplines (pedagogical psychology, child psychology and current trends in psychology) constituting an integral, practically oriented, educational body of knowledge (Isaev, 2000). Since then, the relationship between educational psychology and teacher education has been constant, although the types of interaction have changed from mere application of the body of theory derived in laboratories to educational settings to the inclusion of methods of teaching (Woolfolk, 2000).

Following a review of the literature, Good and Levin (2001) provided examples of educational psychology's contribution to the following areas of education: reading, mathematics and history instruction, students' self-regulated learning and classroom management. Learning theories and academic achievement (particularly in mathematics) turned out to be important research topics for educational psychologists for a decade from 1991 to 2001. Goldberg and Houtz (1995) assessed the perceptions of their current students in educational psychology programmes in New York and found that the most popular specialist areas were cognition and learning, learning strategies, educating special populations, individual differences, motivation and efficacy. Moreover, an examination of recent publications in five of the most prominent educational psychology journals indicated that reading and literacy research remain the most common research topics, followed closely by motivation research (Smith *et al.*, 1998, 2003).

A discussion of the contribution of educational psychology to education, according to Edwards *et al.* (2002), must first of all address the myth that psychology comprises the foundation discipline of education. This was actually the case until the mid 1970s, when psychology, like other disciplines such as philosophy, history and sociology, maintained a pre-eminent role in teacher education. Although these disciplines did not correspond to teachers' practical concerns, they were deemed a sound theoretical base for teaching practice. Edwards and colleagues made the distinction that educational knowledge is prescriptive, while psychological knowledge is interpretive.

Educational knowledge is about what is taught and why, about how and when it is taught and about the expected learning outcomes. This kind of practical knowledge can be developed without the foundation of psychology; this implies that psychology is only a contributory discipline to education. Psychological knowledge can be applied to education only as a kind of formulated educational theory and not as the mechanical application of rules of action.

Kyriacou (1986) properly pointed out that what is ignored by educational psychologists is the fact that teachers' concerns are with practicality and effectiveness, not with understanding the research and theory of psychology. In fact, it is not what counts as 'psychological knowledge', it is what counts as 'educational practices' (McCaslin & Hickey, 2001). Teachers need broad principles which can help them to further cultivate and evaluate their craft knowledge of teaching and learning. It therefore follows that the role of educational psychology is to broaden their craft knowledge. Desforge (2000) complemented this by noting that it is one thing to have a sound knowledge base of teaching and learning and quite another to ensure its impact on practice. Teachers, like all other practical professionals, want to know, on the basis of clear evidence, that a proposed change of practice will be measurably beneficial; then they want the best technology to be developed for its implementation. In Desforge's words, teachers want:

- a) standard and stable models of learning. They cannot work with models that change with the wind;
- b) coherent, organised, and well established findings. They do not have time for literature searches or for refined academic debates;
- c) vibrant working examples of success. That something works is one thing. Examples of how it can be made to work are crucial;
- d) research results converted as far as possible into the technologies of education—into curriculum or other pedagogic materials. (p. 3)

The question which then arises is: 'How can what we know about learning be transformed into pedagogic practice'? The purpose of educational research is to solve immediate practical problems and at the same time obtain a basic understanding of fundamental processes so that solutions to similar problems can be generalized. The impetus for the solution to this transference problem lies within studies in teacher education and the educational psychology field. Many educational psychologists design experiments and apply research to better understand how psychological constructs can be valuable in practice, while the reverse, i.e. the study of practice and the extraction of principles based on naturally occurring phenomena, comes mainly from the classroom management work of Kounin (1970). It should be borne in mind though, that it may be difficult for any one field to contribute simultaneously to both theory and practice. Sometimes, the state of theory is prominent and leads the way in isolation from practical considerations; alternatively, at times the need to solve practical problems becomes imperative and therefore theoretical considerations are given secondary priority.

From the contentions above it arises that the main goal of an educational psychology course in a teacher preparation programme is to help prospective teachers understand, value and apply the knowledge and processes that derive from educational psychology both in their professional lives and in their classroom teaching decisions.

Teaching is complex and unpredictable, full of uncertainty and high-speed actions, in which teachers must take ethical decisions in conjunction with contemporary pedagogical knowledge. Understanding educational psychology offers prospective teachers a theoretical tool to examine and expand their understanding of teaching and learning and tie theory and research to practice. Specifically, as prospective teachers plan a lesson in a particular subject for pupils of a specific age they must consider how to present information in developmentally appropriate ways, to motivate and engage pupils in the learning process and to help them understand and assess their degree of understanding. For Woolfolk-Hoy (1996) the ‘why? how else? why?’ questions are very important. Why might this application work in this situation? How else might teachers apply the theory in question? Why might that application work? Educational psychology should equip prospective teachers to become expert learners and conceptualize how expertise is developed, so that they can help their own pupils become expert learners as well. She makes her point by presenting an example wherein if she had to design an educational psychology course she

would create cohorts of students working together with a group of faculty and practicing teachers. There would be classes and ongoing field placements throughout the preparation sequence. The faculty, teachers and advanced students would identify a number of key cases, typical problems and teaching events along with a library of texts, readings, videos, hypertexts and other learning materials to form the core of the curriculum. (p. 48)

Educational psychology’s contribution is not, however, limited to equipping prospective teachers with theoretical knowledge and the means to translate it into educational decisions. In this paper I argue that educational psychology can offer some broad heuristics which are not directly related to teaching practice but are embedded within teachers’ perceptions of their professional identity, consist of inherent components of their teaching life and inevitably inform their practical decisions. Such heuristics are, for example, prior beliefs, attributions, subjective norms, motivation and self-efficacy beliefs, which are mainly explained from research in educational psychology. In the following part of the paper I will attempt to identify the contribution of educational psychology to teachers’ cognitive processes which determine their actions and, specifically, to the formation of teachers’ perceptions of self, as observers of their professional development.

Educational psychology’s contribution to the teacher’s professional development

Teachers’ prior beliefs about learning and teaching

Teachers’ prior beliefs have a significant impact on their approaches to teaching decisions. Studies related to teachers’ prior beliefs concur on the fact that their behaviour is determined by their personally formulated beliefs and value systems (Clark & Peterson, 1986; Barnes, 1992; Poulou & Norwich, 2002). Sugrue (1997) maintained that teachers’ prior beliefs, the forces that interact to form them and their latent nature are of decisive factors, in terms of the education of teachers and their

continuing professional development. Consequently, these need to be understood and to be subject to a continuous process of negotiation and restructuring for the advancement of teaching quality. Korthagen and Kessels (1999) pointed out that an important factor that contributes to the incomplete transfer of the theories taught in university to classroom teaching lies in the failure of prospective teacher training programmes to act upon the student teachers' already formed beliefs. In fact, students' informal knowledge is resistant to change and we cannot assume that it will change following formal instruction. Prospective teachers often claim that the pedagogical theories and concepts studied at university, although sound and important, are not necessarily relevant to what goes on in 'real classrooms'. Unfortunately, this is the understanding that many new teachers take with them when they leave their teacher preparation programmes. They have difficulty in 'applying' what they learned at university and, therefore, it is not surprising that they may resort to doing what comes naturally, what they know best, as they were taught, as 'seems' appropriate, with a limited understanding of the pedagogical principles underlying their actions. Not surprisingly, the 'theory' studied in university continues to be perceived as unrelated or only partially connected to the real world of practice, while their prior beliefs have a prominent role (Cole, 1989).

Lonka *et al.* (1996) were interested in establishing whether studying educational psychology would have an impact on students' prior beliefs about learning. They found that the perceptions of students on educational psychology courses about core concepts in educational psychology changed as a result of formal training. They proposed a model, entitled 'activating instruction', which aimed at promoting conceptual change in students. The main principles of the model were: (1) diagnosing and activating students' previous conceptions at the beginning of instruction; (2) fostering reflective thinking during the learning process; (3) giving feedback and challenging students' conceptions. According to the researchers, change in the students' core conceptions led to a greater coherence between their beliefs and their practical applications.

At the same time, researchers on teachers' thinking claim that in order to understand, predict and influence what teachers do, we must study the psychological processes by which they perceive their teaching circumstances. Weiner (1992, 1995), with his model of an attributional theory of motivation, offered a link between thoughts, feelings and actions and explored the relationships among cognition, affect and behaviour—the tripartite division within psychology. He argued that in order to explain teachers' helping behaviour with pupils, it is essential to understand teachers' perceptions of the causes of pupils' behaviour and the way their affective reactions are influenced by their causal attributions (Weiner, 1983). In fact, there are quite a few studies providing empirical validation of the sequence 'thought–affect–action' in the educational and achievement domains (see, for example, Covington & Omelich, 1984; Tollefson & Chen, 1988; Weiner, 1993). The psychological construct of attribution theory, however, is not taught in such a way as to help prospective teachers both conceptualize it and relate it to their actions and effects on pupils (Anderson *et al.*, 1995). Accepting such an assumption, the role of educational psychology

instructors then becomes to elicit prospective teachers' attributions, to highlight the ethical dimension of these attributions and to address the implications for both themselves and their pupils.

The importance of intentions as determinants of action, as presented by planned behaviour theory (Ajzen & Fishbein, 1969, 1972, 1980), could be used analogously in teacher education. According to this theory, an individual's intentions to perform a given action are determined by a joint function of his/her evaluations of performing the action, of his/her subjective norms, i.e. perceptions of what others expect him/her to do, and his/her perceived behavioural control, i.e. the ease or difficulty of performing the behaviour and the acknowledgement of constraints. In fact, much research has been conducted to support the theoretical conceptualization of planned behaviour theory in the educational setting (Norwich & Rovoli, 1993; Norwich, 1994). Applying the core ideas of planned behaviour theory to teachers' preparation, we suggest that teacher educators need to explore both prospective teachers' perceptions of the role and the social value they attribute to the teaching profession and their intentions to participate in the process of teaching and learning, taking into consideration the constraints inherent in the profession.

Teachers' reflective practice

Reflection offers a means of scaffolding teachers' prior theories, perceptions, attributions and intentions and integrating them into teaching decisions. With the employment of active reflection, teachers can 'construct their own learning through an interaction among their beliefs, their prior knowledge and their experiences' (Lin & Gorrell, 2002, p. 5). It is accepted that the 'development of thoughtful reflectivity in teachers' is one of the cornerstones of teacher professionalization (Groce *et al.*, 1999), since reflection releases and allows teachers to control the learning and teaching conditions (Connelly & Clandinin, 1988). Taylor (1985) located the role of psychology in the current trend towards cultivating reflective practitioners as a means for the advancement of teachers' professional development. He distinguished between a classical model of psychology, which relies on data which are not interpreted by the observer and are taken for granted, and a hermeneutic version of psychology, which is mainly interested in personal interpretations of meanings, motivations and intentions, rather than causal relationships between acts and outcomes. Edwards *et al.* (2002) also supported the notion of the theorizing teacher who constantly reflects upon and discusses his/her practice and refreshes and informs his/her educational knowledge base. They suggested that teachers' responsibilities will be enhanced if they are seen as both users and producers of knowledge about teaching in the context where it occurs.

Educational psychology courses could contribute towards this movement in teacher education. Joram and Gabriele (1998), for instance, studied the modification of pre-service teachers' prior beliefs on learning and teaching, through a well-structured educational psychology course, and concluded that reflection promotes belief change rather than creates barriers to further learning. Cole (1989) suggested

that students engage in a process of self-inquiry, in order to make the pedagogical theories, research and ideas studied in the course of educational psychology more personally meaningful and practical. This requires educational psychology to reconceptualize its role in teacher education. Educational psychology is now confronted with two complementary goals for future teachers: first, to teach them to become more effective learners and, second, to teach them to be more effective teachers. Educational psychology tutors need to rethink their roles, by placing less emphasis on traditional educational psychology theory and research and moving to models of student change. The research on expertise and self-regulation offers a useful framework for re-addressing the role of educational psychology in teacher education. This requires educational psychology teachers to provide opportunities for prospective teachers to reflect on the practical application of personal or educational theories. In addition, it requires analysis of the teaching–learning process to actually determine what makes an expert teacher or student and the initiation of prospective teachers in a process of self-study to improve aspects of their motivation and learning strategies. This process could be achieved through the four steps of self-observation, goal setting and strategic planning, strategy implementation and monitoring and strategic outcome monitoring (Dembo, 2001).

Teachers' feelings of self-efficacy

A core concept which educational psychology could contribute to teacher education is the concept of self-efficacy. Using Weiner's attributional framework and applying it to the achievement domain, Bandura (1977) asserted that self-efficacy is an important cognitive determinant of action and, at the same time, a cognitive mediator of causal attributions and behaviour. Extending Bandura's reasoning to the educational setting, Ashton (1985) suggested that teachers' outcome expectations about the consequences of teaching are reflected in a dimension which they labelled 'teaching efficacy' (outcome expectation, in Bandura's terms); in contrast, a teacher's judgements of his/her ability to execute particular courses of action and to bring about desired goals are reflected in a dimension they called 'personal teaching efficacy' (efficacy expectation, in Bandura's terms).

Teachers' confidence in their ability to perform the actions that lead to student learning is one of the few individual characteristics that reliably predicts teacher practice and student outcomes (Woolfolk & Hoy, 1990). A plethora of studies have related teachers' sense of efficacy to student achievement (Ashton & Webb, 1986; Ross, 1992), motivation (Midgley *et al.*, 1989) and sense of efficacy (Anderson *et al.*, 1988). Teachers' sense of efficacy has also been related to teachers' behaviour in the classroom (Guskey, 1988; Ghaith & Yaghi, 1997; Milner, 2002), their ideology concerning the control of pupils (Woolfolk & Hoy, 1990), their enthusiasm for teaching (Ashton *et al.*, 1982; Ashton, 1984; Allinder, 1994), the level of stress experienced in teaching (Smylie, 1988), the quality of teaching (Raudenbush *et al.*, 1992), their commitment to teaching (Coladarci, 1992) and their commitment to the profession (Burley *et al.*, 1991; Milner, 2002), the school context (Goddard & Goddard, 2001),

the degree of reference of a difficult student to a special class (Meijer & Foster, 1988; Podell & Soodak, 1993; Soodak & Podell, 1993, 1994) and their willingness to support students with emotional and behavioural difficulties (Poulou & Norwich, 2000, 2002).

With respect to prospective teachers, it has been argued that efficacy beliefs play a definite role in absorbing and interpreting the knowledge offered in teacher training programmes. These beliefs have a greater effect on the way prospective teachers organize their teaching acts than knowledge, while they are stronger indicators for predicting their teaching behaviour (Pajares, 1992). In fact, increased teaching efficacy is linked to an increase in alternative teaching ideas (Thomas & Pedersen, 1998). Prospective teachers' sense of efficacy has additionally been related to their personal theories (Harrison *et al.*, 1996) and teaching practice (Kushner, 1993; Clement, 1999; Smith, 2000; Poulou & Spinthouraki, 2003). A unified model of teaching efficacy applied to teaching practice was recommended by Tschannen-Moran *et al.* (1998). According to this model, teaching efficacy is related to the teaching context. Teachers feel capable of teaching specific subjects, to specific students, in specific teaching contexts, and it is expected that they will feel more or less able under differing conditions. Consequently, in terms of evaluation of their teaching efficacy, it is important to include both the teaching task and the teaching context. On the other hand, in terms of evaluation of personal teaching efficacy, teachers' personal abilities, such as skills, knowledge, strategies or elements of their personality, in conjunction with their personal weaknesses in terms of the specific teaching context, need to be taken into consideration.

Therefore, understanding prospective teachers' efficacy beliefs is critical to developing an insight into the way they develop pedagogical knowledge in classroom settings. An implicit goal for teacher training programmes then becomes to guide prospective teachers towards cultivating feelings about teaching efficacy, in conjunction with an appreciation of the weaknesses and potential that are tied to their professional identity.

Educational psychology's contribution to teacher-pupil interaction

Following on from this, educational psychology has the supplementary task of enabling teachers to acquire the devices that will allow them to promote healthy relationships with their pupils and also allow them to motivate their pupils for learning.

Instruction theories

In recent years there has been a shift in the relationship between theoretical and practical work in educational psychology (McCaslin & Hickey, 2001). The primary goal of theories of learning, engagement and instruction is now to inform practice in productive ways, rather than yield a coherent and parsimonious theory. The point in educational psychology is not Thorndike or Dewey; rather, it is to integrate and reconcile these perspectives for the benefit of teaching. Knowledge of educational

theories does not automatically transfer to practice. There is a level of prescription from one side and a contextual embeddedness on the other. A teacher with a toolkit based on educational psychology has a greater potential to profit from reflection on theoretical knowledge in particular contexts than one who does not (McCaslin & Hickey, 2001). A teacher who has a psychological perspective considers how and what pupils learn in classrooms, how the social and instructional contexts promote pupils' knowledge, motivation and development and how to respond to complex classroom situations. An implicit goal of an educational psychology course thus becomes to cultivate a psychological perspective, based either on contemporary psychological theories (Anderson *et al.*, 1995) or a wide variety of developmental perspectives (Daniels & Shumow, 2003). Teachers need not be psychological theorists. It would, nevertheless, be beneficial for them to reflect upon their teaching activities and adopt a critical perspective, in terms of the wide range of knowledge in educational psychology. At the very least, prospective teachers must be provided with instructional opportunities to apply the knowledge derived from educational psychology in practical situations. Shuell (1996) rightly raised the question, if prospective teachers are unable to manipulate and make use of new knowledge on their own, how would they be able to teach their pupils?

On the other hand, McCaslin and Hickey (2001) asserted that educational psychology constructs in the teaching and learning of subjects like mathematics, science and social studies are rather limited. They nevertheless located subject matter learning as a promising area of collaboration between those who conduct research on the learning of specific disciplines and educational psychologists. Woolfolk (2000) emphasized the importance of the learning process, by arguing that if prospective teachers have an understanding of how pupils learn, in conjunction with an understanding of the taught subject, then they can invent teaching methods. Although consistent with a constructivist perspective, the Cochran *et al.* (1993) model of pedagogical content knowing as a framework for teacher preparation entails four interrelated components of educational psychology and education: pedagogy, subject matter content, student characteristics and the environmental context of learning. This framework implies that in the context of an undergraduate educational psychology course, prospective teachers are provided with a coherent study of theoretical ideas about learning and human development, attitudes, motivations and prior conceptions of the teaching subject and their application to the active learning and teaching of pupils.

Social and emotional learning

Schools have always focused on fostering pupils in the development of their skills in reading, writing and arithmetic. Although it has traditionally been thought that the successful acquisition of these skills earns pupils a promising professional and personal future, educators recognize that the current demands of society require additional skills in the areas of emotional awareness, decision-making, social interaction and conflict resolution. It has become increasingly clear that social and

emotional learning (SEL) is a prerequisite pupils need to possess before they are in a position to access academic material presented in the classroom (Romasz *et al.*, 2004). Social and emotional skills must be taught in a similar way to the academic subjects, in a structured manner. Educational psychology's shift from the identification and assessment of pupils' problems to the areas of prevention and promotion of wellness is congruent with the SEL trend. With knowledge of child development, learning styles and programmes implementation, educational psychologists or, more precisely, school psychologists are in a pivotal position to address the developmental needs of children and collaborate with teachers in promoting their well-being (Ross *et al.*, 2002). At the same time, research on teachers' suggestions concerning the prevention of social, emotional and behavioural difficulties (SEBD) in schools (Poulou, 2005) acknowledges the importance of the teacher's role in both the design and implementation of social, emotional and cognitive skills programmes in schools. Until now, teachers' contributions in these programmes lay in their cooperation with psychologists in the implementation of ready-made programmes for their at-risk pupils and reports on their progress. For their active participation in these programmes, however, teachers need to be equipped with the skills and information provided in educational psychology courses.

Pupils' special educational needs

The contribution of educational psychology to teaching prospective teachers about SEL could be expanded to pupils with special educational needs. In fact, the contribution of psychology to initial training is relevant to special educational needs. Besides the fact that the context of educational psychology has been narrowly defined within the assessment of special educational needs, the purpose of assessment and intervention by educational psychologists is still a topic of debate (Galloway, 1998). At the same time, educational psychologists find themselves caught in a web of conflicting demands, while they continue to struggle to create a role for themselves within the network of special education. Although there is still a conflicting picture of the contribution of educational psychology in special educational needs, it is argued that educational psychology is in fact much wider and more positive, aiming to promote quality of life, enhance motivation, raise achievement, foster learning and cultivate healthy communities in education (MacKay, 2002).

Hunter (2003) set the cooperation of teachers and educational psychologists in practical terms. A review of school-based programmes for disruptive behaviours which involved teachers revealed that educational psychologists played a pivotal role in adequate training and consultation with teachers, so that they can use the programmes or develop classroom behavioural management techniques with pupils with special educational needs. On the other hand, teachers' preferences and criteria for using an intervention will assist psychologists in their task. Involving teachers in the decision-making process maximizes the potential success of an intervention. In order for this mutual cooperation to take place, however, it requires both practitioners

to acknowledge each other's role and responsibilities, as well as limits—information provided once again within an educational psychology framework.

Classroom management

Classroom management has been an important area of interest in educational psychology for some time (Emmer & Stough, 2001). The study of practice and the induction of general principles derived from naturally occurring phenomena is apparent in the classroom management area, specifically in Kounin's (1970) research. Classroom management entails establishing and maintaining order, designing effective instruction, dealing with students as a group while at the same time responding to the needs of individual pupils and effectively handling matters of discipline. From the perspective of teacher educators, pedagogical knowledge about classroom management constitutes an essential part of the knowledge expert teachers possess.

Relationships between teachers' emotions, classroom management and teaching practice are of significant importance (Emmer & Stough, 2001). The effect of teachers' emotions on decision-making is an essential topic for inclusion in the teacher education curriculum. In fact, educational psychology has much to offer to teacher preparation programmes on emotional development in children and teachers' understanding of their responses to student behaviour. Developing an understanding of classroom management, however, requires experiences in real contexts, i.e. situations that teachers confront in classrooms. In practical terms, educational psychology tutors could contribute to the field of teacher education by incorporating relevant classroom management content into their courses and by including experiential components that take place in different classroom contexts, highlighting the managerial features and encouraging reflection. The professional development school (PDS) model suggested by Emmer and Stough (2001), for example, incorporates early field experiences in the teacher education curriculum. Increased exposure to classrooms in conjunction with reflective activities, such as journal writing, could enhance their competence in classroom management. In other words, educational psychology tutors could expand their repertoire to prepare prospective teachers to deal with the challenges pupils pose to classroom discipline and management.

Implications for educational psychology in teacher preparation

Hunt (1976) suggested that in order for psychological research to be applied to educational practice, it must adopt a new paradigm which takes into account the interactive, contextual and temporal features of the phenomena occurring in schools. This requires educational psychologists to gain a better understanding of practitioners, their personal conceptions of teaching and the way they take teaching decisions and to develop a better basis for communication. Teachers, on the other hand, are required to perceive psychologists as people with personal constructs who need to reflect on these constructs as a prerequisite for better communication. More than 20 years later the emphasis on communication among the members of a school

community is still the prominent component in Miller and Leyden's (1999) coherent theoretical framework for the application of psychology in schools. Placing pupils at the centre, the model emphasizes the need for those who apply psychology in schools to appreciate the relationships between the formal and informal aspects of school staff and family systems and the ways in which different interventions have an impact upon different areas of this psycho-social framework.

New challenges in the school field, in turn, imply that significant changes are needed in the universities, in respect of the role of educational psychology in teacher preparation programmes. This requires that teacher educators must go beyond determining whether prospective teachers remember what they have heard or read. They must determine whether they can use their knowledge and understandings in unfamiliar settings. It is a corollary that teachers do not need an abstract body of knowledge, but knowledge which informs their teaching and their learning from their teaching. Practically speaking, this means that teacher educators must equip prospective teachers with skills that they can apply and integrate within their teaching contexts. In Berliner's (1992) words:

I have come to believe that most of what we teach in educational psychology is taught like phonics and vocabulary in reading, or like logarithms and geometry in mathematics; that is, it is taught in a decontextualised manner. Perhaps, much of our research lies fallow because we often fail to give it the quality of a tool. We fail to embed it in meaningful contexts; we fail to embed it in stories that teachers and policy makers can use. (p. 155)

Educational psychology could contribute by providing a wider understanding of children and their development, on the one hand, and of teachers' professional and personal development, on the other (Fontana, 1996). An instructor who promotes thinking in interdisciplinary ways can draw from various concepts in psychology, such as creative thinking, motivation or learning strategies. A challenge for both teacher educators and educational psychologists thus becomes the appropriate selection of theories to think with, concepts to apply and research findings to combine which will actually be useful for prospective teachers (Gardner, 2003).

Suggestions on this complicated transference problem from experience to professional practice have come from Kiewra and Gubbels (1997), who proposed that educational courses and educational psychology texts should: (a) be driven by teaching models; (b) integrate theory and practice; (c) provide opportunities to practice teaching skills; (d) present an integrated model for instructional planning; (e) prepare teachers to teach learning strategies; (f) help students learn. Dutton (1995) went further, to develop a model for conceptualizing this transference problem. She originally applied it to describe educational psychologists' practice, but I argue that it could be used to delineate teachers' practice in an analogous manner. According to this model, practitioners use three strategies to guide their practice: (a) pattern recognition, i.e. analysis of an individual case to recognize familiar patterns in similar cases; (b) knowing in action, i.e. the spontaneous knowledge that is revealed through our actions; (c) naming and framing a problem in a theoretical base, i.e. producing a set of assumptions to explain events. Our assumption is that educational psychology could support prospective teachers in these stages, through the analysis of examples

extracted from classrooms to enrich their patterns and provide a wide range of theoretical frameworks to interpret educational phenomena, as well as tools for monitoring and reflecting on their actions. The use of case analyses could help prospective teachers refine or construct new concepts through ongoing analysis and discussion of concrete teaching anecdotes (Lundeberg & Scheurman, 1997). Finally, Heywood *et al.* (1991) added that the positive relationship between theory and practice can be revealed through a programme of activities that invites prospective teachers to experiment with as many strategies as possible during their teaching practice. Such a programme could help them experience and understand the value of different approaches to teaching and learning.

In fact, a review by Snowman (1997) of 10 educational psychology textbooks published after 1990 in the USA revealed that there was a strong emphasis on explaining and illustrating how classroom teachers can use psychological principles to help pupils achieve educational goals and objectives. In the same study 20 educational psychology course instructors maintained that educational psychologists should expose university students to a variety of topics, with the highest priority being given to topic areas such as motivation, learning processes, cognitive and social/emotional development, the role of educational psychology in teaching, classroom measurement, affective and social processes and cultural differences. Following this review, Snowman offered a three-pronged argument on how educational psychology could help university students become better teachers: (a) teaching is a complex enterprise that requires comprehension of psychological knowledge and its classroom applications; (b) the educational psychology literature entails many useful ideas for improving learning and instruction; (c) coursework in educational psychology enhances teachers' effectiveness.

Conclusions

Educational psychology is not a panacea for teacher preparation. It cannot produce prescriptions or definitive answers. It can, however, provide language, working concepts, research findings and hypotheses which offer scope for further investigation in teaching (Good & Levin, 2001). Moreover, educational psychology could facilitate the artistic nature of teaching. Chizhik and Chizhik (2003), using Sternberg's triarchic theory of intelligence, according to which each person processes information in analytical, practical and creative ways, offered a reconceptualization of educational psychology to emphasize the artistry of teaching, and argued that it could offer a tool that facilitates creative decision-making about teaching and learning.

A necessary condition, though, for the productive dialectic between educational psychology and education is collaboration between educational psychologists, teacher educators and subject matter researchers throughout the teacher education programme and the development of a common framework of teaching across faculties with different expertise in teacher education. Thus, teachers of educational psychology need to learn how the knowledge defined by their field can be utilized by teachers, while teacher educators need to borrow the psychological concepts to gain a wider

reconceptualization of their practice. Combining and team teaching various courses (i.e. educational psychology and field experience) would be one way towards the integration of teacher preparation. This assumption by no means implies that the combination of other fields (i.e. educational sociology) is not necessary in teacher training programmes.

Teaching courses on educational psychology in teacher training programmes is not the only way in which educational psychology contributes to teacher education. This just provides a starting point for the interaction of psychology and teacher preparation. Through reshaping courses and the cooperation of both teacher educators and educational psychologists, prospective teachers could reconceptualize the role of educational psychology and its practical utility in their field. Educational psychology, with theoretical frameworks, assessment tools and evidence-based research, expands the repertoire of teachers' toolkits. Prospective teachers learn to respond to situations and describe, explain and justify their decisions by using psychological concepts, principles and theories. Furthermore, through the cultivation and initiation of prospective teachers into its psychological concepts, educational psychology could enhance their sense of efficacy, motivation, reflection and, consequently, their professional development. With its strong interests in areas such as human learning and cognition, personality development, motivation, testing and measurement, individual and group differences, research on teaching, social and cultural factors, special needs, classroom management and discipline, curriculum design, information technology, teachers' professional development and school effectiveness, educational psychology provides an important basis for the initial education of teachers. With time, insight, interest and persistence, prospective teachers may construct useful principles of development or learning that approximate the insights of Piaget, Vygotsky, Skinner, Bandura, Bruner and others (Woolfolk, 2000).

References

- Allinder, R. (1994) The relationship between efficacy and the instructional practices of special education teachers and consultants, *Teacher Education and Special Education*, 17, 86–95.
- Anderson, L., Blumenfeld, P., Pintrich, P., Clark, C., Marx, R. & Peterson, P. (1995) Educational psychology for teachers: reforming our courses, rethinking our roles, *Educational Psychologist*, 30(3), 143–157.
- Anderson, R., Greene, M. & Loewen, P. (1988) Relationships among teachers' and students' thinking skills, sense of efficacy and student achievement, *Alberta Journal of Educational Research*, 34(2), 148–165.
- Ajzen, I. & Fishbein, M. (1969) The prediction of behavioural intentions in a choice situation, *Journal of Experimental Social Psychology*, 5, 400–416.
- Ajzen, I. & Fishbein, M. (1972) Attitudes and normative beliefs as factors influencing behavioural intentions, *Journal of Personality and Social Psychology*, 21(1), 1–9.
- Ajzen, I. & Fishbein, M. (1980) *Understanding attitudes and predicting social behaviour* (Upper Saddle River, NJ, Prentice-Hall).
- Ashton, P. (1984) Teacher efficacy: a motivational paradigm for effective teacher education, *Journal of Teacher Education*, 35(5), 28–32.
- Ashton, P. (1985) Motivation and the teachers' sense of efficacy, in: C. Ames (Ed.) *Research on motivation in education* (vol. 2)(USA, Academic Press).

- Ashton, P. & Webb, R. (1986) *Making a difference: teachers' sense of efficacy and student achievement* (New York, Longman).
- Ashton, P., Olejnik, S., Crocker, L. & McAuliffe, M. (1982) Measurement problems in the study of teachers' sense of efficacy, paper presented at the *Annual Meeting of the American Educational Research Association*, New York, April.
- Bandura, A. (1977) Self-efficacy: toward a unifying theory of behavioural change, *Psychological Review*, 84(2), 191–215.
- Barnes, D. (1992) The significance of teachers' frames for teaching, in: T. Russell & H. Munby (Eds) *Teachers and teaching from classroom to reflection* (London, Falmer Press).
- Berliner, D. (1992) Telling the stories of educational psychology, *Educational Psychology*, 27(2), 143–161.
- Berliner, D. (2004) Toiling in Pasteur's quadrant: the contribution of N.L. Gage to educational psychology, *Teaching and Teacher Education*, 20(4), 329–340.
- Burley, W., Hall, B., Villeme, M. & Brockmeier, L. (1991) A path analysis of the mediating role of efficacy in first-year teachers' experiences, reactions and plans, paper presented at the *Annual Meeting of the American Educational Research Association*, Chicago, April.
- Chizhik, E. W. & Chizhik, A. W. (2003) Teaching educational psychology to develop creative and transformative teachers, *Journal of Educational Thought*, 37(2), 177–195.
- Clark, C. & Peterson, P. (1986) Teachers' thought processes, in: M. Wittrock (Ed.) *Handbook of research on teaching* (New York, Macmillan).
- Clement, M. (1999) Reducing the stress of student teaching, *Contemporary Education*, 70(4), 20–27.
- Cochran, K., DeRuiter, J. & King, R. (1993) Pedagogical content knowing: an integrative model for teacher preparation, *Journal of Teacher Education*, 44(4), 263–272.
- Coladarci, T. (1992) Teachers' sense of efficacy and commitment to teaching, *Journal of Experimental Education*, 60(4), 323–337.
- Cole, A. (1989) Making explicit implicit theories of teaching: starting points in preservice programs, paper presented at the *Annual Meeting of the American Educational Research Association*, San Francisco, March.
- Connelly, F. M. & Clandinin, D. J. (1988) *Teachers as curriculum planners: narratives of experience* (New York, Teachers College Press).
- Covington, M. & Omelich, C. (1984) The trouble with pitfalls: a reply to Weiner's critique of attribution research, *Journal of Educational Psychology*, 76(6), 1199–1213.
- Daniels, D. & Shumow, L. (2003) Child development and classroom teaching: a review of the literature and implications for educating teachers, *Applied Developmental Psychology*, 23, 495–526.
- Dembo, M. (2001) Learning to teach is not enough—future teachers also need to learn how to learn, *Teacher Education Quarterly*, 28(4), 23–35.
- Desforges, C. (2000) *Familiar challenges and new approaches: necessary advances in theory and methods in research on teaching and learning*, the Desmond Nuttall/Carfax Memorial Lecture (Cardiff, UK, BERA).
- Dutton, R. (1995) *Clinical reasoning in physical disabilities* (London, Williams and Wilkins).
- Edwards, A., Gilroy, P. & Hartley, D. (2002) *Rethinking teacher education. Collaborative responses to uncertainty* (London, Routledge Falmer).
- Emmer, E. & Stough, L. (2001) Classroom management: a critical part of educational psychology with implications for teacher education, *Educational Psychologist*, 36(2), 103–112.
- Fontana, D. (1996) A role for psychology in teacher education? Comments on Hazel Francis's paper, *Education Section Review*, 20(2), 6–8.
- Fox, M. (2003) Opening Pandora's Box: evidence-based practice for educational psychologist, *Educational Psychology in Practice*, 19(2), 91–102.
- Francis, H. (1996) Role for psychology in initial teacher education?, *Education Section Review*, 20(2), 2–4.
- Galloway, D. (1998) Special education in the United Kingdom: educational psychologists and the effectiveness of special education, *The School Psychology Review*, 27(1), 77–83.

- Gardner, H. (2003) Higher education for the era of globalisation, *Psychologist*, 16(10), 520–522.
- Ghaith, G. & Yaghi, H. (1997) Relationships among experience, teacher efficacy and attitudes towards the implementation of instructional innovation, *Teaching and Teacher Education*, 14, 451–458.
- Goddard, R. & Goddard, Y. (2001) A multilevel analysis of the relationship between teacher and collective efficacy in urban schools, *Teaching and Teacher Education*, 17, 807–818.
- Goldberg, N. & Houtz, J. (1995) Brief research report. Educational psychology: the next generation II, *Contemporary Educational Psychology*, 20, 114–120.
- Good, T. & Levin, J. (2001) Educational psychology yesterday, today and tomorrow: debate and direction in an evolving field, *Educational Psychologist*, 36(2), 69–72.
- Groce, E., Henson, R. & Woods, B. (1999) The examination of pre-service teachers' journals for reflective thought patterns concerning professionalism, paper presented at the *American Educational Research Association*, Montreal (ERIC Document Reproduction Service No. 436 381).
- Guskey, T. (1988) Teacher efficacy, self-concept and attitudes toward the implementation of instructional innovation, *Teaching and Teacher Education*, 4, 63–69.
- Harrison, P., Moore, P. & Ryan, J. (1996) College students' self-insight and common implicit theories in ratings of teaching effectiveness, *Journal of Educational Psychology*, 88(4), 775–782.
- Heywood, J. *et al.* (1991) Experience versus theory in teacher education, Research in Teacher Education Monograph Series no. 2/91, paper presented at the *Annual Conference of the Association for Teacher Education in Europe*, Noordwijkerhout, The Netherlands, September (ERIC Document Reproduction Service No. 360 259).
- Hunt, D. (1976) Teachers are psychologists too: on the application of psychology to education, *Canadian Psychological Review*, 17(3), 210–218.
- Hunter, L. (2003) School psychology: a public health framework III. Managing disruptive behavior in schools: the value of a public health and evidence-based perspective, *Journal of School Psychology*, 41, 39–59.
- Isaev, E. I. (2000) S. L. Rubinshtein's contribution to the psychological training of educators, *Russian Education and Society*, 42(11), 90–104.
- Joram, E. & Gabriele, A. (1998) Preservice teachers' prior beliefs: transforming obstacles into opportunities, *Teaching and Teacher Education*, 14(2), 175–191.
- Kiewra, K. & Gubbels, P. (1997) Are educational psychology courses educationally and psychologically sound? What textbooks and teachers say, *Educational Psychology Review*, 9(2), 121–149.
- Klimov, E. A. (1999) What kind of psychology should be taught to future teachers and how?, *Russian Education and Society*, 41(4), 18–24.
- Korthagen, F. & Kessels J. (1999) Linking theory and practice: changing the pedagogy of teacher education, *Educational Researcher*, 28(4), 4–17.
- Kounin, J. (1970) *Discipline and group management in classrooms* (New York, Holt, Rinehart and Winston).
- Kushner, S. N. (1993) *Teacher efficacy and preservice teachers: a construct validation* (ERIC Document Reproduction Service No. 356 265).
- Kyriacou, C. (1986) *Effective teaching in schools* (London, Routledge).
- Lin, H. & Gorrell, J. (2002) The road to pre-service teachers' conceptual change, *Educational Research Quarterly*, 26(2), 54–65.
- Lonka, K., Joram, E. & Bryson, M. (1996) Conceptions of learning and knowledge: does training make a difference?, *Contemporary Educational Psychology*, 21, 240–260.
- Lundeberg, M. & Scheurman, G. (1997) Looking twice means seeing more: developing pedagogical knowledge through case analysis, *Teaching and Teacher Education*, 13(8), 783–797.
- MacKay, T. (2002) Discussion paper—The future of educational psychology, *Educational Psychology in Practice*, 18(3), 245–253.
- McCaslin, M. & Hickey, D. (2001) Educational psychology, social constructivism and educational practice: a case of emergent identity, *Educational Psychologist*, 36(2), 133–140.

- Meijer, C. & Foster, S. (1988) The effect of teacher self-efficacy on referral chance, *Journal of Special Education*, 22, 378–385.
- Midgley, C., Feldlaufer, H. & Eccles, J. (1989) Change in teacher efficacy and student self- and task-related beliefs in mathematics during the transition to junior high school, *Journal of Educational Psychology*, 81, 247–258.
- Miller, A. & Leyden, G. (1999) A coherent framework for the application of psychology in schools, *British Educational Research Journal*, 25(3), 389–400.
- Milner, H. (2002) A case study of an experienced teacher's self-efficacy and persistence through crisis situations: theoretical and practical considerations, *The High School Journal*, 86, 28–35.
- Norwich, B. (1994) Predicting girls' learning behaviours in secondary school mathematics lessons from motivational and learning environment factors, *Educational Psychology*, 14(3), 291–306.
- Norwich, B. (2000) *Education and psychology in interaction* (London, Routledge).
- Norwich, B. & Rovoli, I. (1993) Affective factors and learning behaviour in secondary school mathematics and English lessons for average and low attainers, *British Journal of Educational Psychology*, 63, 308–321.
- Pajares, M. F. (1992) Teachers' beliefs and educational research: cleaning up a messy construct, *Review of Educational Research*, 62(3), 307–332.
- Podell, D. & Soodak, L. (1993) Teacher efficacy and bias in special education referrals, *Journal of Educational Research*, 86(4), 247–253.
- Poulou, M. (2005) The prevention of emotional and behavioural difficulties in schools: teachers' suggestions, *Educational Psychology in Practice*, 21(1), 39–54.
- Poulou, M. & Norwich, B. (2000) Teachers' causal attributions, cognitive, affective and behavioural responses to children with emotional and behavioural difficulties, *British Journal of Educational Psychology*, 70(4), 559–581.
- Poulou, M. & Norwich, B. (2002) Teachers' cognitive, affective and behavioral responses to children with emotional and behavioral difficulties: a model of decision making, *British Educational Research Journal*, 28(1), 111–138.
- Poulou, M. and Spinthouraki, J. A. (2003) ζ didaktiki apotelesmatikotita ton ypopsifion ekpaideutikon, *Mentoras*, 7, 3–18.
- Raudenbush, S., Bhumirat, C. & Kamali, M. (1992) Predictors and consequences of primary teachers' sense of efficacy and students' perceptions of teaching quality in Thailand, *International Journal of Educational Research*, 17(2), 165–177.
- Romano, M. (2002) Training teachers for quality education in Europe, *European Journal of Teacher Education*, 25(1), 11–17.
- Romasz, T., Kantor, J. & Elias, M. (2004) Implementation and evaluation of urban school-wide social-emotional learning programs, *Evaluation and Program Planning*, 27, 89–103.
- Ross, J. (1992) Teacher efficacy and the effect of coaching on student achievement, *Canadian Journal of Education*, 17(1), 51–65.
- Ross, M., Powell, S. & Elias, M. (2002) New roles for school psychologists: addressing the social and emotional learning needs of students, *School Psychology Review*, 31(1), 43–52.
- Schoenfeld, A. (1999) Looking toward the 21st century: challenges of educational theory and practice, *Educational Researcher*, 28(7), 4–14.
- Shuell, T. (1996) The role of educational psychology in the preparation of teachers, *Educational Psychologist*, 31(1), 5–14.
- Smith, B. (2000) Emerging themes in problems experienced by student teachers: a framework for analysis, *College Student Journal*, 34(4), 633–642.
- Smith, M., Locke, S., Boisse, S., Gallagher, P., Krengel, L., Kuczek, J., McFarland, J., Rapoo, B. & Wertheim, C. (1998) Brief research report. Productivity of educational psychology journals, 1991–1996, *Contemporary Educational Psychology*, 23, 173–181.
- Smith, M., Plant, M., Carney, R., Arnold, C. S., Jackson, A., Johnson, L., Lange, H., Mathis, F. F. & Smith, T. (2003) Productivity of educational psychologists in educational psychology journals, 1997–2001, *Contemporary Educational Psychology*, 28, 422–430.

- Smylie, M. (1988) The enhancement function of staff development: organizational and psychological antecedents to individual teacher change, *American Educational Research Journal*, 25(1), 1–30.
- Snowman, J. (1997) Educational psychology: what do we teach, what should we teach?, *Educational Psychology Review*, 9(2), 151–170.
- Soodak, L. & Podell, D. (1993) Teacher efficacy and student problem as factors in special education referral, *Journal of Special Education*, 27, 66–81.
- Soodak, L. & Podell, D. (1994) Teachers' thinking about difficult-to-teach students, *Journal of Educational Research*, 88(1), 44–51.
- Sugrue, C. (1997) Student teachers' lay theories and teaching identities: their implications for professional development, *European journal of Teacher Education*, 20(3), 213–225.
- Taylor, C. (1985) *Human agency and language* (Cambridge, UK, Cambridge University Press).
- Thomas, J. & Pedersen, J. (1998) *Draw a-science-teacher-test: a visualization of beliefs and self-efficacy*. Available online at: www2.tlct.ttu.edu/thomas/conference%20paper/aets%2098/aets.htm (accessed 20 June 2004).
- Tollefson, N. & Chen, J. (1988) Consequences of teachers' attributions for student failure, *Teaching and Teacher Education*, 4(3), 259–265.
- Tschannen-Moran, M., Woolfolk-Hoy, A. & Hoy, W. K. (1998) Teacher efficacy: its meaning and measure, *Review of Educational Research*, 68, 202–248.
- Weiner, B. (1983) Some methodological pitfalls in attributional research, *Journal of Educational Psychology*, 75(4), 530–543.
- Weiner, B. (1992) *Human motivation* (London, Sage).
- Weiner, B. (1993) On sin versus sickness: a theory of perceived responsibility and social motivation, *American Psychologist*, 48(9), 957–965.
- Weiner, B. (1995) *Judgments of responsibility: a foundation for a theory of social conduct* (New York, Guilford Press).
- Woolfolk, A. (2000) Educational psychology in teacher education, *Educational Psychologist*, 35(4), 257–276.
- Woolfolk, A. & Hoy, W. (1990) Prospective teachers' sense of efficacy and beliefs about control, *Journal of Educational Psychology*, 82(1), 81–91.
- Woolfolk-Hoy, A. (1996) Teaching educational psychology: texts in context, *Educational Psychologist*, 31(1), 41–49.