

DEVELOPING NEW TEACHER EDUCATION CURRICULA: WHY SHOULD CRITICAL RATIONALIST EPISTEMOLOGY TALK LOUDER?

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Abstract. This paper concentrates on the legitimisation of two basic traditions of teacher education: *educational psychology* in Anglo-American countries and *Didaktik* in continental European countries. Having been developed and reinforced largely by empirical research carried out in accordance with their own conceptual premises, these two traditions, when used together in teacher education, cause terminological vagueness and casual overlap of the curriculum. This paper argues for stronger epistemological consideration in legitimising the usage of these concepts in teacher education. It will be argued that a critical evaluation of the scientific content of these concepts – via the critical rationalist tradition initiated by Popper and Lakatos – is logically possible and a practically inevitable task for the improvement of teacher education curricula.

Keywords: teacher education, educational psychology, didactics, critical rationalism

Introduction

Throughout the history of modern Western education, the English-speaking Anglo- American tradition and German-speaking continental European tradition have been developed largely by different philosophical, epistemological, social and psychological theories. One of the distinctions between these two traditions has been the different conceptual framework under which the main issues of teacher education have been handled. In the English-speaking world, *educational psychology* and *curriculum studies* have constituted the main conceptual frame. In the German-speaking countries and in Northern Europe these topics have traditionally been handled within the framework of *Didaktik* – a concept almost missing in the Anglo-American educational tradition.

For long decades, a comparative discussion between the concepts of *Didaktik* and *educational psychology* was virtually non-existent. Recent tendencies on both sides of the Atlantic indicate a growing interest in mutual comparative discussion between these traditions. Many authors have stressed that the disciplines of

Didaktik, *educational psychology* and *curriculum studies* at least partially attempt to cover the same practical field (Hopmann and Riquarts, 1995; Kansanen 2002). Hopmann and Riquarts (1995:8) regard this recognition as resulting largely from the pursuits of Scandinavian educationalists, who have a long tradition of working with both of these conceptions.

Working within a range of influences from many foreign cultures is, however, not unique to Scandinavians. For centuries, many Eastern European nations have also been accustomed to maintaining their national identities amongst numerous simultaneously existing foreign cultures. Geographically located between two large cultural spaces – German and Russian – these countries have throughout history experienced an immense impact from both of them. During the decades of Soviet power after World War II, the Russian tradition was particularly influential, as these countries were within the Soviet bloc. After the fall of communism, however, the influence of English-speaking countries, particularly of the United States and Great Britain, has risen enormously. First of all, this tendency has resulted from rapid globalisation and from the efforts of the Eastern European countries to integrate Western tradition in all spheres, including education.

Thus, having been influenced historically by both the Anglo-American and German cultures, Eastern European countries are now forced to develop their own teacher education systems. On the one hand, this is an extraordinary, sophisticated task, as the foreign influences have been highly complex and contradictory. On the other hand, a certain detachment from both the Anglo-American and continental European cultures enables the Eastern European countries to be alert to the advantages and disadvantages possibly neglected by the native inheritors of these two traditions.

In this paper, the development of the teacher education curriculum in Estonia will be presented, with a focus on the complicated relationship between two of its core subjects – educational psychology and didactics, originated respectively from the Anglo-American and continental European traditions. In the period 1945–1991, Estonia was part of the Soviet Union. After the fall of communism, Estonia rapidly undertook especially liberal changes in all socio-political spheres that resulted in a haphazard emulation of Western models, including in education. Thus, in many respects, Estonia figures as an exemplary case in the Eastern European context. The clarification of the theoretical base for teacher education curriculum and the stimulation of mutual discussion is an inherently practical task. Therefore, a consideration of the foundations of curriculum and the positioning of selection principles are urgently needed.

In the present paper, it will be argued that from the traditional foundations of curriculum – psychology, sociology, philosophy and history – philosophical issues need more attention. It will be suggested, relying upon the example of *educational psychology* and *Didaktik*, that the critical rationalist epistemology initiated by Karl Popper and Imre Lakatos offers a proper base for a selection between the rival concepts professing to found teacher education curriculum. While postmodernists, Kuhnians and most representatives of the interpretative paradigm, disfavour any

attempt to objective logic, critical rationalism regards this as a principal, though not an easily attainable ideal.

Altogether, then, the paper consists of five parts. First, development of the concepts of *educational psychology* and *Didaktik* will be outlined and their mutual overlap will be presented. Secondly, the vagueness of the concepts of *educational psychology* and *Didaktik* regarding the Estonian teacher education curriculum will be delineated in brief. Thirdly, the legitimating principles of educational concepts and the composition of the curriculum used in Estonia after its re-independence will be delineated. Fourthly, the rise of critical rationalist epistemology will be outlined. Finally, the applicability of critical rationalist epistemology to comparative analysis of educational concepts will be demonstrated and discussed, with particular focus on the concepts of *Educational psychology* and *Didaktik*.

2. Educational psychology and Didaktik

2.1. Growth of the concepts

All told, at least three distinctive phases can be outlined considering the mutual relationship of German *Didaktik* with Anglo-American educational psychology in the course of their development. Until the early 20th century, the mutual connection was considerable. Thereafter, from about the 1920s – the heyday of the German *Geisteswissenschaftliche* tradition – contacts were minimal. Only now during the last decade has a growth in mutual interest been noticed again.

The concept of *Didaktik* was initiated by educationalists working within the German tradition at the beginning of the 17th century – Wolfgang Ratke and Johann Amos Comenius. In the 19th century, *Didaktik*, guided by the work of Johann Friedrich Herbart and his model of *educating instruction*, became a central concept in German educational theory. Up to the end of the 19th century, German *Didaktik* also gained much popularity among American researchers, including the early eminent representatives of educational psychology G. Stanley Hall and J. Dewey (Hopmann and Riquarts 1995:5–6). In the late 19th and early 20th centuries, Herbart's concept of *Didaktik* was gradually replaced by *Bildungstheoretische Didaktik* initiated by the proponents of 'reform-pedagogy' (the school renewal movement in Europe) – first of all by the great names of the *Geisteswissenschaftliche* tradition Herman Nohl and Erich Weniger.

From that period onwards, the impact of *Didaktik* on American education almost vanished. Generally, this tendency conjoined the overall decline of European influence on American educational thought at the time. In the US, landmark original literature on educational psychology (e.g. Thorndike 1906, 1913) and on curriculum (e.g. Dewey 1902) was being published. In 1926, the yearbook of the National Society for the Study of Education (Rugg 1926) was published, which became seminal for curriculum inquiry in the US for several decades. More particularly, however, substantial differences between American

curriculum studies and the inherently holistic reform-pedagogy of *Didaktik* have also been mentioned (Hopmann and Riquarts 1995:6).

The *Geisteswissenschaftliche Didaktik* via Weniger remained central in the German tradition until the 1960s, when younger representatives of the Weniger school – Herwig Blankertz, Wolfgang Klafki and Klaus Mollenhauer – became gradually more influenced by critical-emancipatory theory (Benner and Brügger 2000:248). From the early 1960s onwards, the two most eminent influences on the *Didaktik* concept can be regarded as Klafki's critical constructive theory (Klafki 1995) and Blankertz's theory based on his fundamentals (1969/1991). Thus, as will be indicated later, though German education of these decades did not remain completely without Anglo- American influences, the concept of *Didaktik* mostly developed within the framework of the powerful continental philosophical traditions.

The concept of educational psychology owed much of its birth to influences from Herbart. As Hopmann and Riquarts (1995:6) put it, "What Americans ... did take from Herbart was in fact not the whole of *Didaktik* but the educational psychology grounding it." Another, more modern, German influence on Anglo-American educational psychology was the early experimental pedagogy initiated by Wilhelm Wundt's school, which was soon disseminated on both sides of the Atlantic (Landsheere 1997:9). The distinguished founders of the American tradition of educational psychology in late 19th century are commonly regarded to be G. Stanley Hall, William James, John Dewey and Edward L. Thorndike (Calfée and Berliner 1996:7, Husen 1997:67–68). The experimentalist Thorndike particularly influenced American educational psychology towards empirical research – a tradition which is virtually impossible to find within the framework of *Geisteswissenschaftliche Didaktik* (Kansanen 2002:436).

2.2. *Rapprochement of the traditions*

Kansanen (2002) gives a comparative overview regarding the advantages and shortcomings of the Anglo-American concept of educational psychology and the German concept of *Didaktik*. Kansanen holds both concepts as insufficient in not treating the educational process as a totality. Thereby, both concepts lack certain necessary features. To summarize the results of Kansanen's study briefly, German *Didaktik* traditionally remains too teacher-centred, focussing insufficient attention on students' activities and learning. Also, having been developed largely alongside the *Geisteswissenschaftliche* tradition, it lacks a proper tradition of empirical research. Educational psychology, on the other hand, pays insufficient attention towards the context of studies, e.g. subject matter. In addition, it also has too faint a philosophical background.

Some recent tendencies imply that both concepts have gradually recognised each other's advantages and – although not necessarily by modelling the other – have taken steps to repair their deficiencies. Some examples awaiting further investigation will be delineated, but not discussed at length here. First, more general reasons for this rapprochement will be sketched out.

The last decades of Western educational thought have witnessed a shift from the epistemological origins of the legitimisation of education to social and political arguments. Soon after World War II, the *explosion of knowledge*, clearly recognised on both sides of the Atlantic, and particularly in Anglo-American countries (Phillips 1987:123; Landsheere 1997:9), illuminated the problem of selection principles for the content of school education. Subsequently, the search for legitimisation principles turned some authors to epistemology with absolutist endeavours. In the British analytical tradition of the 1960s and 1970s, Paul H. Hirst and Richard Peters (1970) influentially sought to legitimise the aims and procedures of education, including school curriculum content, by the nature of knowledge itself. In the USA, Joseph Schwab's theory of conceptual structures (Schwab 1962) represented a similar approach, though less prominently. Now this approach is generally rejected. Hirst's theory has been attacked from many aspects, including by critical theory (Carr and Kemmis 1986:12–13) and postmodernism (Usher and Edwards 1994). Usher and Edwards (1994:47–48) criticise Hirst's theory of knowledge as contributing to the implicit concept of disciplines being neutral, consequently concealing their close linkage with power. Recently, Hirst himself (1993) has admitted the shift of his primary concern from the essence of knowledge to the social and practical implications of education.

As legitimisation of the school curriculum by the essence of knowledge has been found epistemologically invalid as well as ideologically unacceptable, for some authors Hirst's name demarcates almost the whole opposition to epistemology and postmodernism (Davis and Williams 2003:254). Though postmodernism is inherently a continental tradition, in the United States, too, Richard Rorty's wholesale attack against epistemology and philosophy's relevance for education (Rorty 1979) has been particularly influential. Thus, we can conclude together with Heyting (2004:107–109) that due to a rising interest towards sociology and history, and particularly because of the celebration of social and epistemological plurality, the German and Anglo-American traditions have become mutually more involved and many former differences between them are starting to dim.

From the standpoint of *Didaktik*, an example of this dimming is a gradual expansion of the concept of *Didaktik* initiated by Klafki. Klafki (1995:14) admits that his initial critical-constructive conception of *Didaktik*, dominant in Germany from the 1960s onwards, grasped only the "theory of contents and curriculum (*Didaktik als Theorie der Bildungsinhalte und des Lehrplans*).” Thirty years later, however, he uses *Didaktik* for both the dimension of objectives and content and the dimension of methods, taking into account the preconditions given at both the personal and institutional levels, and emphasising the primacy of objectives against all other dimensions of instruction (Klafki 1995:14). Furthermore, Klafki (*ibid*) stresses the centrality of interaction between student and teacher, thereby making explicit the improvement of the lack of this dimension of student activity indicated by Kansanen.

Finally, Klafki presents the rationale of five general didactic questions which should be considered in the preliminary phase of instructional preparation. The questions are:

1. What wider or general sense or reality do these contents exemplify and open up to the learner?
2. What significance does the content in question or the experience, knowledge, ability or skill to be acquired through this topic already possess in the minds of the children in my class?
3. What constitutes the topic's significance for the children's future?
4. How is the content structured?
5. What is the body of knowledge which must be retained ('minimum knowledge') if the content determined by these questions is to be considered 'acquired,' as a 'vital,' 'working' human possession? (Klafki 1995:22–26)

For practical applicability in teacher education curricula, Klafki's didactic rationale embraces an inevitable comparison with rationales embedded within other conceptual frameworks, but applying to the same practical field. An example is Ralph Tyler's famous rationale of four fundamental questions for curriculum development posited as follows:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organised?
4. How can we determine whether these purposes are being attained? (Tyler 1949/1969:1)

Overlaps between Klafki and Tyler are explicit (note Klafki's fourth question and Tyler's third question), though not discussed at length here. Yet another blurring of the differences can be marked by the adoption of constructivism into the concept of *Didaktik* during the recent decades (Terhart 1999, Bernhard 1999). Terhart (1999:630) regards constructivism as largely expanding the hitherto position of *Didaktik* and opening it to new international perspectives, thereby with explicit influences coming from the Anglo-American tradition.

From the standpoint of Anglo-American educational psychology, the recognition of a long-standing deficiency may be demonstrated by Lee S. Shulman's endeavours to vitalize the context-specific approach in educational psychology. With Shulman, educational psychology has, however, had a long, though contradictory, history of subject-matter research (Shulman and Quinlan 1996). Shulman and Quinlan (*ibid*, 408) also stress that up to the most recent times there has also been a relatively scarce systematic research on *teaching*, because, from Thorndike's times onwards, *learning* has always been a dominant and almost exclusive construct.

Though based on the works of long-standing and eminent representatives of one or another tradition, the above examples concern highly complex matters for which counter-evidence surely can be found. The intention here is to show that it will be ever more problematic to legitimise the usage of either concept on the basis of the societal needs they pretend to answer, or on the basis of the accumulated empirical research carried out within their conceptual frameworks. The growth of a substantial overlap cannot be ignored.

3. Educational psychology and *Didaktik*: the case of Estonian teacher education curricula

At the University of Tartu as well as at the Tallinn University – the two main institutions of higher education preparing teachers for Estonian general education – curricula of teacher education contain terminology from the two traditions of educational psychology and *Didaktik*, and were adapted without an adequate concern for their mutual compatibility. In the subject of teacher education curricula of Tartu University, there are three compulsory subjects: Educational Theory, Social Education and Educational Psychology, and General Didactics. Brief annotations of these disciplines, composed by the responsible lecturers of the subjects (see e.g. Teacher ... 2002), indeed admit the lack of a rigorous comparison of the content and terminological framework of these disciplines. In the Tallinn University, annotations for many subjects, for example, Basic Didactics and Design and Development of Curricula, imply a similar problem (see e.g. Elementary ... 2002). To some extent, differences also persist between the older and younger generations of researchers. Due to some influence from East German educational research during the Soviet times, the German tradition somehow maintained its pre-Soviet era position among the older generation of researchers. The younger generation, on the other hand, has experienced the growing domination of the English-speaking culture, whereby knowledge of the German language and awareness of continental European tradition is diminishing.

4. Legitimation of educational concepts in Estonia

The principles for choosing the educational concepts and composition of curriculum have always been in close linkage with the political ethos of a particular era. For education in Eastern European countries in the late 1980s and early 1990s – the period of liberation from Soviet power – this meant a degree of emulation of different extremes (Roberts 2001). The initial enthusiasm for different streams of *alternative education*, characteristic in Estonia during that period, has now somewhat declined. Still, there is much admiration for relatively newly emerged theoretical concepts that often lack a clearly assured status and systematic relation to theories and terminological framework generally used within Western educational circles. Most of their legitimating basis is constructed on the urgent practical challenges they, one after another, pretend to answer. Notable in this context is the spread of Steiner (Waldorf) schools in Estonia, particularly during the first years of re-independence (Priimägi 2002:23).

Of recent Estonian authors, Kreitzberg (1993) gives perhaps the most comprehensive analysis of the legitimation of educational concepts and the possible selection principles between them. Though Kreitzberg sees no essential differences between the basic educational problems in Estonia and those in advanced Western countries, he nevertheless regards Estonia as the inheritor of the Soviet tradition mainly stuck on the positivistic paradigm with pre-established, expert-based

educational aims worked out for automatic solutions of practical problems (Kreitzberg 1993:228). Kreitzberg holds there is still a belief in Estonia that one can substitute the former aims set in the centralised way with other kinds of prefixed aims, which are automatically more “right”. Together with Grauberg, Kreitzberg explicitly contrasts foundationalist, expert-based *scientific legitimation* of education, with *democratic legitimation* based on negotiation between all sides of the educational process (Kreitzberg and Grauberg, 1995:49–50; italics mine).

None of the paradigmatic notions about knowledge, man and his development, and society leaves any considerable place for democratic negotiations and will-formation. Thus, I would conclude that we follow two contradictory intentions – that of democratisation of education and scientific legitimation of scientific decisions (Kreitzberg and Grauberg, 1995:50).

Kreitzberg repeatedly stresses the rehabilitation of hermeneutical, critical, and constructivist paradigms as essential for the democratisation of the educational process at every level (Kreitzberg, 1993:229; 1999:159).

While many of Kreitzberg’s arguments are still vital, the somewhat simplified dual distinction of positivist and interpretative paradigms, with his explicit sympathy for the latter, leaves us with no strategy to cope with the accumulation of rival theories. Whether we stick to the positivist paradigm with its presumably theory-neutral empirical evidence for corroboration of a theory, or whether we turn to the interpretative paradigm with its belief in paradigm incommensurability, there is no way out from the accumulation of concepts. Via a qualified researcher with proper tools in hand, it could probably be equally possible to *verify* the effectiveness of the same kind of intervention carried out within the framework of *Didaktik*, educational psychology, curriculum studies or any other tradition. For a pragmatic task to avoid endless fragmentation of the teacher education curricula, we cannot, however, accept all these concepts equally. Nor can democratic negotiation alone, when not conjoint with a pursuit for a common rational basis, offer any better solution than surrender to the will of the largest community of scientists in the field. Qualified expertise in a sense of comparative rational assessment of rival theories is indeed an urgent practical need, which by no means stands in opposition to democracy. Democratic negotiation may well be conjoined with scientific legitimation, at least if the term *scientific* is not taken in the narrow sense of *scientism*.

5. The rise of critical rationalism

The theory-laden essence of empirical research was generally recognised from the mid-20th century onwards, in close linkage with the decline of positivism and empirical research, as a valid institution of scientific theories. By and large, the two main schools of the post-empiricist epistemology were sketched out with the publication of Karl Popper’s *The Logic of Scientific Discovery* (1959) and Thomas Kuhn’s *The Structure of Scientific Revolutions* (1970).

One of the cornerstone issues for the Popper – Kuhn debate during the 1960s and 1970s became the mutual compatibility and commensurability of rival theories or paradigms – historical fact as well as the normative ideal, which Popper defends and Kuhn rejects. Popper suggests that frameworks of different scientific concepts can and should be rationally evaluated, also over the boundaries of language and cultural context (Popper 1987:50–51). For Kuhn (1970:94), methods of evaluation between competing paradigms cannot be logically objective, as each paradigm uses its own evaluation criteria. Another relevant issue is the community-based essence of science. Kuhn (1970:36) regards science as based on a community of practitioners with shared beliefs and common criteria for achieving the solution of a scientific problem. Popper (1970:56), in turn, rejects the thesis that for a successful scientific discussion participants need to share a common set of assumptions. Additionally, it is vital to remind that Popper and Kuhn largely disagree as to what disciplines should be regarded as basic for determining the scientific knowledge and selection criteria between competing theories. While Kuhn (1970a: 21) relies, first of all, upon psychology and sociology, Popper (1970:57–58) strongly rejects psychology, sociology and history for these purposes, for they are apt to relativism, fashion and uncontrolled dogmas. Instead of these disciplines, Popper proposes logic. For him (1987:43) the method of science consists of criticising a received explanation and then proceeding to a new imaginative story, which in turn is submitted to criticism (*trial-and-error-elimination*).

Lakatos, a Popper adherent, proposes a prolonged rational consideration of a series of successive research programs instead of the instant refutation of a theory that failed to pass the test (Lakatos 1970). Lakatos holds that a characteristic feature of mature sciences consists of prolonged research programs, instead of a mere *patched up pattern of trial and error* (Lakatos 1970:175). Each research program, states Lakatos, should embody a *hard core* – a complex of statements which are irrefutable by the methodological decisions of its protagonists. Giving up a part of the *hard core* means the retreat of the whole research program. The *hard core* is surrounded by a *protective belt of auxiliary hypotheses*, which, to defend the *hard core*, may constantly be adjusted in the course of testing the theory (Lakatos 1970:133–134).

Distinctively from Popper, Lakatos considers that theories must not be refuted instantly and that, sometimes, immediate harsh critics should be ignored (*ibid*, 179). Thus according to Lakatos, we can in principle always assess the extent and accuracy with which the rival concepts are able to cover the field and explain the phenomena, although it is not reasonable to overthrow any theory hastily.

6. Critical rationalism applied

Much educational research is now done, albeit implicitly, in the Kuhnian manner: where all that matters is the existence of a scientific community with its unquestioned belief in the accuracy of the concept. The weakening of a coherent

and rigorous approach to the study of education and the growth of educational pseudo-disciplines lacking a critical tradition of enquiry has recently been noticed not only in Eastern European countries, but in many other countries as well (Blake et al 2003:14). This is, to note, in agreement with Kelly (1999:33) that, without any rational basis, value systems created by groups and sub-groups of society may easily cause the imposition of a certain form of knowledge acceptable by any dominant sub-group.

One of Kuhn's arguments against cross-paradigmatic rational discussion has been that, in science, it has been an extremely rare historical fact (Kuhn 1970a). Popper, of course, holds this viewpoint to be false, suggesting there has always been a constant and fruitful discussion between rival paradigms (Popper 1970:55). For the present purposes, such a possibility will be demonstrated by just a few examples.

In the context of educational psychology, the philosopher of science and education D. C. Phillips has recently argued against self-supporting circularity that most investigators use to justify their research results. According to Phillips (1996: 1011), a *crude model or metaphor* previously embedded by a scientist strongly influences the specific theory, the design, the type of data that will be collected and the results that will ensue. Thus, results published in accordance with the original model or metaphor in turn reinforce faith in the validity and fruitfulness of the model.

Among the examples of educational psychologists working in a similar vein, Phillips (*ibid*, 1012) notes Thorndike's research results about animals' intelligence, which, as assessed by German gestalt psychologist Köhler, were based on experiments designed so that they could only support Thorndike's previous assumptions. Köhler himself, in turn, was working with a different root metaphor just as circular as Thorndike's (Phillips 1996:1012).

Phillips (1987:179–201) has also demonstrated the applicability of Lakatos's theory to educational programs, analysing Kohlberg's stages of moral development. Challenging the *irrefutable hard core* necessary for the survival of a research program, Phillips finds all basic constituents of Kohlbergian theory – logical necessity, stage sequence and invariance of stages of moral development – being gradually given up to empirical counter-evidences and rigorous theoretical investigation. Phillips concludes that Kohlberg's theory mainly consists of "patched-up empirical adjustments" with a lack of *heuristic power* to predict *novel* facts – it is degenerative and has little recognisable merit (Phillips 1987:199). Ten years later, Phillips again explicitly reveals the same position (Phillips 1996:1009). Important for current purposes is the applicability of Lakatos's methodology to Kohlberg's theory of moral development – a theory which enjoys a powerful position within current teacher education in many countries.

Yet the analysis of Kohlberg's theory is noteworthy in helping to make a step further. Via Lakatosian methodology, not only is it possible to evaluate the development of theory on the basis of the accretion of empirical results, but also on the basis of comparing its coherence with that of other theories pretending to the same

practical agenda. Henry (2001) has analysed the applicability of Kohlberg's theory to the social level. Henry argues that while seeing his developmental theory successfully applied to individual moral development, Kohlberg in the late 1960s turned his attention to the use of his theory in educational practice – to providing the best social arrangement for promoting the free exercise of participants' moral reasoning (Henry 2001:261). Henry sets Kohlberg's universal concept of justice against the pragmatic-interactional thought of Dewey, explaining that:

...the alternative conception of morality provided by pragmatism portrays moral life as a set of lived agreements that do not exist within individuals per se but are created between individuals engaged in a process of solving their moral problems with solutions that are sensitive to their lived situations (Henry 2001:276).

In brief, Henry holds that the pragmatic approach supersedes Kohlberg's approach in several aspects:

Instead of having certain types of outcomes predetermined by the use of a universal and prescriptive form of justice, as Kohlberg maintains, an interactional view that includes an emphasis on both process and outcome would allow for several positive results.

First, by focusing on both process and outcome, groups can craft decisions that are duly responsive to both individual and organisational interests. Second, solutions can be more responsive to potential side effects that might follow from their implementation. Third, and most important, such a view of justice advances social change in a way that the universal justice position cannot (Henry 2001:274).

Again, notwithstanding here further consideration of Henry's arguments, it is important to imply that the applicability of the Popperian method of *trial and error-elimination*, which – to return to the case just discussed above – now waits for a response from of the Kohlbergians. From Lakatos we know that this method, however, cannot lead to quick success. The cornerstone of critical rationalist argument shared by both Popper and Lakatos is, nevertheless, that a rational account is in principle possible; whereas for Kuhn, there is not much to discuss at all. Following Kuhn, we may accept all theories of moral development – universalist, pragmatist, or any other – equally, as long as there is a community of protagonists working with these theories. We can even accept them as independent scientific disciplines. Following Popper and Lakatos, on the other hand, we have a rational strategy for selection between them – albeit not a rapid one.

Conclusion

Certainly most contradictions in the history of science cannot be reduced simply to the different national or cultural origins of theories. For a teacher education curriculum – in Estonia and probably in many other Eastern European

countries as well – the importance of critical rationalism lies, however, in the consideration of its validity as well as of its mutual compatibility and commensurability with the core subjects that encompass different cultural origins. Empirical evidences alone, however brilliantly designed by the community of researchers, cannot validate a theory or concept within which they have been gathered. It is possible – and as indicated above, logically necessary – to undertake theoretical investigation of more general concepts like *Didaktik* and educational psychology. With hindsight, it is possible to investigate to what degree either of these concepts still maintains their original basic premises and terminology, or whether they have gradually come to consist of theories and terminology borrowed from other conceptions. In other words, it is possible to elucidate the degree to which the theoretical knowledge base of any concept – like that of educational psychology or *Didaktik* – consists of original knowledge and the degree to which it has been augmented with knowledge that initially belonged to another concept. Returning to the previous notion of Klafki's rationale of five general didactic questions, it would be possible to assess its relation to Tyler's rationale of the basic principles of curriculum. In the long run, it is possible to evaluate which one of the rationales explains the phenomena more accurately.

Apparently rational analysis of research programs cannot give a definitive answer to a question dependent on the interpretation of a particular term or fact – like the question posed by Landsheere (1997:10): “Who is the father of experimental pedagogy?” But this is not a question based on a prolonged and comprehensive investigation of rival conceptions. To locate the concept or discipline in the context of other concepts in the field and to make contradictions, where they exist, explicit, is, in turn, the first step towards rational discussion. This, however, still lacks in the current Estonian tradition – and probably also in many other countries' teacher education curricula.

Finally, we should, together with Popper (1987:60), ask a pragmatic question: what are the consequences of our thesis or our theory? Are they acceptable to us? Reconciling the infinite proliferation of rival theories without a strategy for their rational evaluation is not acceptable, if the true improvement of teacher education curricula is sought.

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Documents

- Elementary school teacher. Curriculum.* Code 6140412. Faculty of Educational Sciences, Tallinn Pedagogical University, Tallinn, 2002. Retrieved December 27, 2004, from <http://www.tpu.ee/?LangID=1&CatID=642>.
- Teacher of Estonian language and literature. Curriculum.* Code 714004. Teacher Training. Faculty of Philosophy, University of Tartu. Tartu, 2002. Retrieved December 27, 2004, from the Studies Information Database at <https://www.is.ut.ee/pls/ois/tere.tulemast>

References

- Benner, Dietrich & Friedhelm Brügger (2000) "Theorien der Erziehungswissenschaft im 20. Jahrhundert". *Zeitschrift für Pädagogik* 46, Beiheft 42, 240–263.
- Bernhard, Armin (1999) "Neuere Grundlagenkritik an der Didaktik". *Zeitschrift für Pädagogik* 45, 5, 649–666.
- Blake, Nigel, Paul Smeyers, Richard Smith, & Paul Standish (2003) "Introduction". In *The Blackwell Guide to Philosophy of Education*,. 1–17. Nigel Blake, Paul Smeyers, Richard Smith, & Paul Standish, eds. Oxford: Blackwell.
- Blankertz, Herwig (1991) *Theorien und Modelle der Didaktik*. 13. Reprint. Weinheim & München: Juventa 1969.
- Calfee, Robert C. & David C. Berliner (1996) "Introduction to a dynamic and relevant educational psychology". In *Handbook of educational psychology*, 1–12. , D. C. Berliner & R. C. Calfee, eds. New York: Macmillan.
- Carr, Wilfred & Stephen Kemmis (1986) *Becoming critical. Education, knowledge and action research*. London: The Falmer Press.
- Davis, Andrew & Kevin Williams (2003) "Epistemology and curriculum". In *The Blackwell Guide to Philosophy of Education*, 253–270. Nigel Blake, Paul Smeyers, Richard Smith, & Paul Standish, eds. Oxford: Blackwell.
- Dewey, John (1902) *The child and the curriculum*. Chicago: University of Chicago Press.
- Henry, Sue Ellen (2001) "What happens when we use Kohlberg? His troubling functionalism and the potential pragmatism". *Educational Theory* 51, 3, 259–276.
- Heyting, Frieda (2004) "Beobachtungen zur internationalen Anschlussfähigkeit der Allgemeinen Erziehungswissenschaft in Deutschland". *Zeitschrift für Pädagogik* 50, 1, 99–111.
- Hirst, Paul Heywood & Richard Peters (1970) *The logic of education*. London: Routledge.
- Hirst, Paul Heywood (1993) "Education, knowledge and practices". In *Beyond liberal education. Essays in honour of Paul Hirst*, 184–199. Robin Barrow & Patricia White, eds. London: Routledge.
- Hopmann, Stefan & Kurt Riquarts (1995) "Starting a dialogue: issues beginning conversation between didaktik and the curriculum traditions". *Journal of Curriculum Studies* 27, 1, 3–12.
- Husen, Torsten (1997) "Educational history in biographies and autobiographies". In *Educational research, methodology and measurement: an international handbook*, 67–70. John P. Keeves, ed. Cambridge: Cambridge University Press.
- Kansanen, Pertti (2002) "Didactics and its relation to educational psychology: problems in translating a key concept across research communities". *International Review of Education* 48, 6, 427–441.
- Kelly, A. V. (1999) *The curriculum. Theory and practice*. London: Paul Chapman Publishing.
- Klafki, Wolfgang (1995) "Didactic analysis as the core of preparation of instruction" *Journal of Curriculum Studies* 27, 1, 13–30.
- Kreitzberg, Peeter & Ene Grauberg (1995) "Democratic vs. scientific and expert legitimization of educational decisions". In *Education in Europe. An intercultural task*. Vol. 3, 48–52. Christoph Wulf, ed. Münster & New York: Waxmann.
- Kreitzberg, Peeter (1993) *The legitimization of educational aims: paradigms and metaphors*. Lund: Kompendiet-Göteborg.

- Kreitzberg, Peeter (1999) "Denaturalising of the discourse on educational aims". In *Quo vadis, kasvatusteadus? Quo vadis, educational science?*, 154–176. Airi Liilemts, ed. Tallinn.
- Kuhn, Thomas (1970) *The structure of scientific revolutions*. Chicago: The University of Chicago Press.
- Kuhn, Thomas (1970a) "Logic of discovery or psychology of research?" In *Criticism and the growth of knowledge*, 1–23. Imre Lakatos & Alan Musgrave, eds. Cambridge: Cambridge University Press.
- Lakatos, Imre (1970) "Falsification and the methodology of scientific research programmes". In *Criticism and the growth of knowledge*, 91–195. Imre Lakatos & Alan Musgrave, eds. Cambridge: Cambridge University Press.
- Landsheere, G. (1997) "History of educational research". In: *Educational research, methodology and measurement: an international handbook*, 8–16. John P. Keeves, ed. Cambridge: Cambridge University Press.
- Phillips, D. C. (1987) *Philosophy, science and social inquiry*. Oxford: Pergamon Press.
- Phillips, D. C. (1996) "Philosophical perspectives". In *Handbook of educational psychology*, 1005–1019. David C. Berliner & Robert C. Calfee, eds. New York: Macmillan.
- Popper, Karl (1959) *The logic of scientific discovery*. New York: Basic Books.
- Popper, Karl (1970) "Normal science and its dangers". In *Criticism and the growth of knowledge*, 51–58. Imre Lakatos & Alan Musgrave, eds. Cambridge: Cambridge University Press.
- Popper, Karl (1987) "The myth of the framework". In *Rational changes in science I*, 35–62. C. Pitt & Marcello Pera, eds. Dordrecht: D. Reidel Publishing Company.
- Priimägi, Sirje (2002) "School diversity: democracy or meritocracy". In *Competing for the future: education in contemporary societies*, 20–27. Tiiu Kuurme & Sirje Priimägi, eds. Tallinn: TPÜ Kirjastus.
- Roberts, K. (2001) "The new East European model of education, training and youth employment". *Journal of Education & Work* 14, 3, 315–328.
- Rorty, Richard (1979) *Philosophy and the mirror of nature*. Princeton: Princeton University Press.
- Rugg, H. O., ed. (1926) *Curriculum-making: past and present*. (26th Yearbook of the National Society for the Study of Education, Part 1.) Bloomington: Public School Publishing.
- Schwab, Joseph J. (1965) "Structure of the disciplines: meanings and significances". In *The structure of knowledge and the curriculum*, 1–30. G. Ford & L. Pugno, eds. Chicago: Rand McNally.
- Shulman, Lee S & Kathleen M. Quinlan (1996) "The comparative psychology of school subjects". In *Handbook of educational psychology*, 399–422. David C. Berliner & Robert C. Calfee, eds. New York: Macmillan.
- Terhart, Ewald (1999) "Konstruktivismus und Unterricht: Gibt es einen neuen Ansatz in der Allgemeinen Didaktik?". *Zeitschrift für Pädagogik* 45, 5, 629–647.
- Thorndike, Edward (1906) *The principles of teaching based on psychology*. New York: Mason-Henry Press.
- Thorndike, Edward (1913) *The psychology of learning: educational psychology*. Vol. 2. New York: Teachers College Press.
- Tyler, Ralph W. (1969) *Basic principles of curriculum and instruction*. Chicago: The University of Chicago Press.
- Usher, Robin & Richard Edwards (1994) *Postmodernism and education*. New York: Routledge.