Vol 8, No. 2, December 2012, pp. 62-71

Reflecting Education
http://reflectingeducation.net

IN PURSUIT OF GOOD TEACHER EDUCATION: HOW CAN RESEARCH INFORM POLICY?

Jens Rasmussen and Claus Holm
Aarhus University, Denmark

ABSTRACT

This paper aims to answer the question: how can research inform policy about what good teacher education is and about how it can be implemented? The paper takes up a general and ongoing debate about the relationship between research and practice – here especially educational research and political practice. The questions are motivated by society's high expectations of applying scientifically produced knowledge to other systems of society and the public. Four different strategies, which all attempt to explain the problem of making research results useful for practice, are discussed. Those are the linear pipeline approach, the mode-2 research approach, the boundary work approach, and the structural coupling approach.

INTRODUCTION

Today the primary and lower secondary school is considered one of the most important public investment areas. The reason is that it is seen as the first link in the knowledge economy circuit that forms the basis of a nation's possibilities in international competition. This competition is taking place in a cross-border, common global market. In this market, education has become a decisive factor when a company takes decisions not only on where to establish its production units but also on where it wants to place its research and development units. As a result, the primary and lower secondary school, despite still being a national school, must think beyond its national borders and see itself as a school that has to prepare students for both a domestic and an international employment market.

This relatively new situation challenges teacher education. Again and again it has been stated that teacher education is decisive for the quality of a nation's basic school system (Barber and Mourshed, 2007; Mourshed, Chijoke and Barber, 2010). Moreover, good teacher education is also seen as a decisive factor in promoting economic growth, stability, safety and equality in the global knowledge society, as the US secretary of education Arne Duncan has said (Duncan, 2010). In recent years, teacher education has taken a prominent position on the political agenda. The international summit arranged by Arne Duncan for ministers of education and union leaders from 25 countries in the spring of 2011 reflects this in its telling title: Building a High-Quality Teaching Profession (OECD, 2011).

It must be emphasised in this context that the development of teacher education has to be based on scientifically based research and professional knowledge, not on politicians' beliefs. Today we have comprehensive research-based knowledge on what characterises

 ISSN 1746-9082

successful teacher education programmes and also on what characterises successful teachers, but that is not the topic of this paper. Rather, this paper will discuss how it is possible for research to inform politics (politicians and political practice) about such knowledge.

This paper aims to answer the question: how can research inform policy about what good teacher education is and about how it can be implemented? We want to take up a general and ongoing debate about the relationship between research and practice – here especially educational research and political practice (but many of our considerations might also apply to educational practice). In other words, we want to pay attention to problems related to the aim of experts to influence political practice and political decisions – policy makers you might say. In modern society there are high expectations of applying scientifically produced knowledge to other systems of society and the public.

Perspectives

Everyone pursues good – not to say the best – teacher education. From an external perspective, the political systems in nations around the world pursue good teacher education out of national competitive interests. From an internal perspective, the educational system and teacher education themselves pursue good teacher education with an interest in developing issues such as the theory/practice relationship, subject didactics or practice teaching in the programmes offered. Also, the system of science – i.e. educational research, with its external view on teacher education – has shown a strong interest in the question of how to improve teacher education and teachers' work. We could also mention the interest shown by the economic system, especially in relation to the question of employment of future generations, and we could mention the system of mass media, which probably more than any other system of society is setting the agenda for communication about educational topics and issues. In order not to increase the complexity of the theme of this article, we will concentrate on the perspectives of the first mentioned three systems: politics, education and science.

We witness consensus among these systems with respect to teacher education. They are all in pursuit of good teacher education. The decisive question, however, is what is understood by good teacher education? Each of the systems has its own perspective on what it regards as good teacher education, so what is understood as good teacher education is to a high degree dependent on perspective: whether it is the perspective of politics, education or science. The problem then is that it does not make sense to pursue good teacher education unless you are fairly clear about what you understand by the term: what are the criteria for good teacher education?

It is important not just to assume that all of society's systems understand the same thing by good teacher education. In that case, the criteria for good teacher education become a blind spot that is not questioned. The problem with the consensus among the different parties in the debate is that, at most, it only goes as far as to say 'Good teacher education is an education that educates good teachers', which of course is a tautology not saying much.

The decisive questions then become: what is understood by a good teacher? How is a good teacher produced?

Four strategies

Below we take a sociological view on the relationship between research, education and politics. In this respect we adopt the description of modern society given by sociological systems theory as invented by the German sociologist Niklas Luhmann. Society is here described as functionally differentiated in a number of systems. Functional differentiation means that each of society's systems performs a different function and provides different performances, and also that each system does this from its own criterion for success. These criteria are called symbolically generalised media of communication. The political system's medium is power, the medium of science is truth, and the medium of education is mediation (Luhmann, 1995; Luhmann, 2002). In the system of science, money has no validity (we are not saying it does not matter) in the sense that the quality of a researcher's result, Niels Bohr's findings for example, has nothing to do with him being rich or not, and scientific results do not become more or less true just because they can be sold.

Sub-systems of society do not on the one hand dispose of the ability to have contact with their environment but on the other hand they are referred to relations to their environment. This paradox of at the same time being precluded from, and dependent on the environment means that the sub-systems are autonomous but not autarkic, i.e. self-sufficient. This understanding raises the question: how can systems relate to their environment without losing their autonomy? Or to put it more precisely within the context of this article: how is it possible for the system of educational research to relate to the political system?

As an answer to this question we will present four different strategies, which all attempt to explain the problem of making research results useful for practice, whether it is political practice or educational practice. The four approaches are:

1. The linear pipeline approach
2. The mode-2 research approach
3. The boundary work approach
4. The structural coupling approach.

The linear pipeline approach

The first strategy we want to mention is the linear pipeline approach. Although it is today rejected by all parties, it is still the most common approach in use. This strategy is based on the assumption that research results can be transferred directly from the system of research to practitioners, similar to the traditional sender/receiver communication model. The criticism of this strategy goes like this: researchers publish research results in peer-reviewed journals that only a few practitioners read. The educational research is fragmented, politicised, irrelevant, and distanced from practice. Of course, scientific knowledge can be of value to practitioners but rarely in an unmediated form (Hargreaves, 1996: 7; OECD, 1995; OECD, 2003: 10f.).

For practitioners, scientific knowledge is something they *can* take into consideration in decision-making (policy decisions as well as educational decisions), but a first premise is that the knowledge is known by the practitioners. Neither politics nor education can take anything into account that they do not know about. They need to take it up themselves, but practitioners are often not sufficiently trained educated to be able to read research reports and journals. Moreover, practitioners need to decide whether they actually want to take scientific knowledge into consideration. Very often this is only possible if scientific knowledge is translated and transformed into the 'what works' code of the practitioners.

The mode-2 research approach

The second approach we will mention is related to the claim for a different kind of research than the traditional scientific production of knowledge called mode-1 research. The claim is that research that is of value to practitioners must be based on other research criteria than the generally accepted criteria. This approach, which is known as mode-2 research, has many similarities with action research. Mode-2 research pays emphasis to the solution of known problems in different contexts of practice. The idea is that research has to be applicable to practice and practitioners by producing solutions rather than new knowledge. The criterion of success is changed from reliable true knowledge to socially robust knowledge. Mode-2 research gains ground because of a growing demand for interaction between research on the one hand and society's other systems on the other hand. Mode-2 research is seen as a way of eroding the sharply drawn border between science and society (Gibbons, Limoges, Nowotny, Schwartzman and Scott, 1994; Nowotny, Gibbons and Scott, 2001).

Although mode-2 research is understood as research, it is research that rejects the true/false code of the scientific system in favour of a code of *what works* in a concrete social context. In this respect, mode-2 research is considered an approach that is better able than mode-1 research to meet the needs of a modern (mode-2) society, because it relates to problems *in practice* in order to find solutions to them.

Seen from our perspective, it is not meaningful to see mode-2 research as a competing paradigm to mode-1 research. Seen alongside research and development work and action research, mode-2 research does not offer much that is new. Like these approaches, it lends itself well to generating knowledge and solutions to practitioners' known problems. It is as such that mode-2 research has its strength and legitimacy; not as an alternative for scientific research. Knowledge produced via mode-2 activities is characterised by its ability to connect its reliability to specific social contexts in which it is found acceptable if individuals or groups of individuals find it applicable to identified problems. The production of so-called *socially robust knowledge* can be understood as a condensation and transformation of indeterminate uncertainty in a context of practice into more determined certainty, i.e. knowledge that seems fruitful.

Instead of seeing mode-2 research as a better approach to production of knowledge than mode-1 research, we find it more productive to see it as a complementary approach. Scientific research (mode-1) on the one hand and research and development work and

action research (mode-2) on the other hand contribute to the production of knowledge in different but equally important ways. Therefore, it is questionable whether it is a good idea to erase the boundary between society's different systems by stressing mode-2 research as a better and more appropriate approach. It can very well result in dysfunctional systems and especially it can compromise research.

The boundary work approach

The third approach we want to mention takes as its point of departure consideration of the demarcation line between science and non-science described by the American sociologist Thomas F. Gieryn. From an actor theoretical constructivist perspective, he argues that there are no universal principles of demarcation between science (scientific research) and other forms of knowledge production; the distinction is contextually contingent and based on interests. As a consequence, he restates the problem of demarcation by focusing on the boundary work of scientists (Gieryn, 1983). However, he not only sees boundary work from the perspective of actors, but he also sees it from the perspective of cartographical categories. From that perspective, research is seen as a delimited field in line with fields such as politics, religion, economy and education. Such fields serve as relatively stable frameworks for interpretation across society, and displace the question of demarcation from 'what is research?' and 'who is a researcher?' to 'where is research?' These fields offer a repertoire of familiar characteristics for the actors' selective actions (Gieryn, 1995: 415).

Although Gieryn's aim was to contribute to the debate on what research is as distinct from other forms or ways of knowledge production, paying closer attention to boundaries can be beneficial as a way to recognise what separates different knowledge fields, what they have in common, how they can be told apart, and how they can be related to each other. The boundary between educational research and political practice could then be seen as a *trading zone* for relations, interactions and translations among them and for the recognition of each field's distinctive character. From such a perspective that has found prominence in the field of healthcare, the idea of a more or less sharp distinction between fields is maintained and instead of focusing on one of the two (or more) fields in play (educational science or policy) the boundary itself is brought into focus. Attention is put on the in-between, the boundary, and designations such as 'boundary worker', 'boundary spanner' or 'role hybrid' are used (Lander and Atkinson-Grosjean, 2011: 540).

Boundary work signifies strategies that defend the demarcation criteria separating one knowledge domain from another, and are said to be in a better position to foster informed practice. *Boundary spanning* facilitates the transfer of knowledge between contexts, fields or networks. *Role hybrids* describe individuals involved in both scientific practice and the use of scientific knowledge. These different terms have in common that they in one way or another denote the process of translation from one field to another.

We are familiar with boundary workers such as the educators of professionals, for example teachers. They perform at the boundary between educational science and education. Today educators of teachers must be knowledgeable in educational research (educational science) as well as in educational practice. In this sense they are the *in-betweens* between

educational theory and educational practice. It is also claimed that teacher educators, like role hybrids, should engage in research themselves, and not only communicate research results to their students.
Between science and politics, as well as between science and education, we see a new layer of translators evolving: for example the development of *clearing houses* such as the Cochrane Centres in medicine, the Campbell Collaboration in social science, and many in education such as the EPPI-Centre in London, the What Works Clearinghouse in the USA and – in all modesty – the Danish Clearinghouse for Educational Research, the first in the Nordic countries. The aim of these clearing houses is, in short, to collate research findings and communicate them to politicians and educational practitioners.

The structural coupling approach

The fourth and final approach we want to discuss is called *structural coupling*. We are now returning to sociological systems theory where structural coupling is a concept denoting the relation or relations between society's individual systems of function. In other words, it is a concept for system-to-system relations. The concept is used to describe how a system relates to its environment, i.e. to other systems, and at the same time maintains independence from these other systems. A structural coupling indicates what a system takes as information and what it is indifferent to. Structure is here understood as expectations (we are not in structuralism or post-structuralism). Structural couplings are couplings of expectations.

In sociological systems theory the social is conceptualised as communication, not like in actions theory as actors' actions. It is communication that determines what kind of system is at stake. It is, so to speak, the communication – not the institution – that sets the systems. When the social is conceptualised as communication and not as action, it becomes possible to understand the societal differentiation of systems of function as a differentiation of different forms of communication and not as a differentiation of specific sites and venues. It is, therefore, only specific forms of communication that integrate the system of science and the political system. From this perspective, the system of research does not consist of universities and research institutions. It is not the location in which a research result has been produced that decides whether it is scientific or not. It is decided by application of the true/false code to the communication. The same goes for the political system and its use of the power/opposition code.

Structural coupling is a simultaneous coupling of two systems in which the two systems narrow down their expectations in relation to the other system. They are highly selective, which means that they exclude much more than they include. This can be explained by an example. The structural coupling between the educational system and the economic system (the labour market) is said to take place through grades and certificates, competencies and credentials, and so on. Grades and documented competencies make it easy for both systems to couple to each other (Luhmann, 1997: 786). The educational system knows that the economic system expects students to have a good and relevant education, and it responds to this expectation by providing informative labelling expressed in grades and certificates. The

economic system is, on its side, able to relate its expectations to the applicants only, or mostly, by informing itself from grades and certificates.

The structural coupling of the system of science and the political system takes place as guidance (Luhmann, 2000: 393ff.). Guidance denotes any form of knowledge offered in regard to a diagnosed condition in a presumed future. On a highly abstract level, the coupling of expectations is controlled by the media and codes of the two systems, i.e. truth and power respectively. However, this does not say much about how structural couplings more concretely take place, i.e. what expectations can be identified as a point or theme in communication for structural coupling of research and policy.

This general question about how policy can be informed by research and how research can make itself useful in respect to political practice can only be answered empirically. Expectations change over time when they are met, disappointed or simply forgotten. Our probably not very surprising claim is that *student outcomes* have become the expectation structure that today has gained precedence as the semantic theme for the coupling of educational research with politics and political practice. The scientific system observes that the political system expects higher student outcomes, and answers this expectation by research into how this can be achieved. The political system, on its side, to a large degree limits its sensitivity to research results that meet this expectation.

Improving student outcomes

This brings us back to the question of what characterises a good teacher. In recent years it has repeatedly been said that teachers play a decisive role in student learning and the improvement of student outcomes. The quest for greater teacher quality is universal and so is the demand for higher-quality teacher education. Research on teacher education shows clearly that the professional pedagogical preparation of teachers has significant effects on student learning (Darling-Hammond and Bransford, 2005). It is shown that the quality of an educational system cannot exceed the quality of its teachers (Barber and Mourshed, 2007). Today a shift can be seen in these notions from emphasising the role of the teacher to emphasising the quality of the teacher. Good teachers are now described as teachers who consistently obtain high learning growth from students. Poor teachers are, therefore, the opposite, i.e. teachers who consistently produce low learning growth. These definitions come from educational research (Hanushek, 2002). Such definitions find resonance in the political system when research findings are published about the characteristics of such good teachers. The communication about high-quality teachers is, to a large degree, compressed into this simple, complexity-reducing statement: high-quality teachers improve student outcomes. The pursuit of good teacher education, then, becomes a pursuit for high-quality teachers.

The political system pays a lot of (national) attention to the improvement of student outcomes. In many countries it is an explicit aim to climb up the PISA ladder. The previous Danish prime minister, alongside ministers in other countries, declared that Denmark (and those other countries) in 2020 must be among the best-performing countries in the PISA study, i.e. be in the top five. It means that much educational research on teacher education

has been directed into issues concerning how to improve student outcomes. We see this in the *what works* movement, the idea of *scientifically based research in education*, the *evidence movement* where randomised controlled trials gain ground – again – as the golden standard, and also in the many efforts to learn from countries that perform well in the PISA studies and other international comparative studies.

The benchmarking of national education systems or, more correctly, of student performance has led to a full-grown industry of learning from high-performing countries. In teacher education we see studies on the organisation of programmes: whether they are research based or not; what kind of students they recruit, i.e. whether they are able to recruit from the top of a cohort of graduates from high school; whether the teaching content of programmes is research based or rather based on practical experience, etc. (Barber and Mourshed, 2007; Nordic Council of Ministers, 2009).

Counter effects

That the structural coupling of educational research and educational policy takes place via guidance does not mean that the political system listens to the advice given, that it understands it in the same way as the system of science, or that it follows the advice given. The political system constructs its own solutions to educational problems, not only taking research-based knowledge into account.

At the same time as we observe an explicit interest from the political system in evidence-based decision-making, we also observe that the political system loses patience with teacher education because of its slow adaptation to the results of educational research and evidence for how to educate better teachers. An example might be that politicians/governments promise parents (read voters) that their children will be taught by excellent teachers so that their outcomes will be improved. In this respect they pay a lot of attention to teacher education, which also explains why teacher education is often one of the most regulated education programmes in many countries. To reach this goal, different reform efforts are introduced with the aim of eventually improving student outcomes, of course all backed up by evidence from research: for example the introduction of higher standards for teacher education programmes, the introduction of more effective recruitment practices, a greater commitment to professionalism, more research-based teaching content, etc. And then, what happens?

Schools look for effective teachers who can improve student outcomes, but instead of waiting for teacher education programmes to produce and deliver such teachers, instead of paying attention to paper credentials of teacher education, the rationale from politics sounds: why limit the entry into teaching? Anyone should be able to enter the profession and show whether they can improve student outcomes. This is an idea, but not an unthinkable example, taken from the American context and reported by Diane Ravich in her horror scenario of educational policy that combines evidence-based policy decision-making with free market ideology. Instead of waiting for changes in teacher education programmes based on research evidence, why not just let everyday practice show who will be a good teacher? When the expectation of good teacher education is reduced to a programme that

produces good teachers in the sense of teachers who are able to improve student outcomes, then it becomes tempting for schools just to go for teachers who in practice meet this expectation (Ravich, 2010: 178ff.).

REFERENCES

Barber, M. and Mourshed, M. (2007) *How the World's Best Performing Schools Come Out on Top*. London: McKinsey and Company.

Darling-Hammond, L. and Bransford, J. (eds) (2005) *Preparing Teachers for a Changing World: What teachers should learn and be able to do*. San Francisco: John Wiley and Sons.

Duncan, A. (2010) Back to school. Enhancing U.S. education and competitiveness. *Foreign Affairs,* 89(6), 65–74.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S. and Scott, P. (1994) *The New Production of Knowledge: The dynamics of science and research in contemporary societies*. London: Sage.

Gieryn, T. F. (1983) Boundary-work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. *American Sociological Review,* 48(6), 781–795.

Gieryn, T. F. (1995) Boundaries of science. In S. Jasanoff, G. E. Makle, J. C. Petersen and T. Pinch (eds), *Handbook of Science and Technology Studies* (pp. 393–443). Thousand Oaks, London/New Delhi: Sage Publications.

Hanushek, E. (2002) Teacher quality. In L. Izumi and W. Evers (eds), *Teacher Quality* (pp. 1–12). Palo Alto: Hoover Institution.

Hargreaves, D. (1996) *Teaching as a Research-Based Profession: Possibilities and prospects*. London: TTA.

Lander, B. and Atkinson-Grosjean, J. (2011) Translational science and the hidden research system in universities and academic hospitals: A case study. *Social Science and Medicine,* 72(4), 537–544.

Luhmann, N. (1995) *Social Systems* (J. Bednartz Jr. and D. Baecker, Trans.). Stanford: Stanford University Press.

Luhmann, N. (1997) *Die Gesellschaft der Gesellschaft*. Frankfurt am Main: Suhrkamp.

Luhmann, N. (2000) *Die Politik der Gesellschaft*. Frankfurt am Main: Suhrkamp.

Luhmann, N. (2002) *Das Erziehungssystem der Gesellschaft*. Frankfurt: Suhrkamp.

Mourshed, M., Chijoke, C. and Barber, M. (2010) How the world's most improved school systems keep getting better. Available from:

http://mckinseyonsociety.com/downloads/reports/Education/How-the-Worlds-Most-Improved-School-Systems-Keep-Getting-Better_Download-version_Final.pdf

Nordic Council of Ministers (2009) Comparative study of Nordic teacher-training programmes. Available from: www.norden.org/da/publikationer/publikationer/2009-520

Nowotny, H., Gibbons, M. and Scott, P. (2001) *Rethinking Science: Knowledge and the public*. Cambridge: Polity Press.

OECD (1995) *Educational Research and Development: Trends, issues and challenges*. Paris: OECD.

OECD (2003) *New Challenges for Educational Research*. Paris: OECD.

OECD (2011) *Building a High-Quality Teacher Profession: Lessons from around the world*. Paris: OECD.

Ravich, D. (2010) *The Death and Life of the Great American School System: How testing and choice are undermining education*. New York: Basic Books.

Correspondence:

Dr. Jens Rasmussen
Department of Education - Centre for Research in Compulsory Schooling
Tuborgvej 164
2400 København NV
Denmark
E-mail: jera@dpu.dk