

The Education Act - Conditions for a Research-based School A Frame-Factor Theoretical Thinking

Stephan Rapp*, Mikael Segolsson & Tomas Kroksmark

School of Education and Communication, Jönköping University, Sweden.

*Corresponding author: Stephan.Rapp@ju.se

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Abstract: In 2010, the Swedish Parliament enacted a new education act that, among other aspects, stipulated education in primary and secondary schools must be based on research and proven experience. Such a legal requirement that would apply to both school levels is quite innovative not only in Sweden but internationally.

Over the years principals and teachers have developed new pedagogies designed to improve teaching and learning. Could another means toward such improvements lie in a law stipulating that education in primary and secondary school must be based on research and proven experience? What conditions are required for such a law to affect the work of the school faculty and staff?

The analytic methods used in this investigation are Lundgren's frame factor theory and Goffman's frame analysis. The focus is on the relationship between parliamentary control via legislation and the possibilities of principals and teachers to fulfil the intentions of the law.

Our analysis reveals that the law experienced difficulties due to it not being properly implemented and not providing clear instructions on how it should be used in teaching practice.

Keywords: Legal Regulation, Research and Proven Experience, Primary and Secondary Schools, Frame Factor Theory

Introduction

A major goal for educational systems around the world is the improvement of student outcomes and to that end different approaches have been taken (NCL, 2016; Masino & Nino-Zarazúa, 2016). In order to compare outcomes, and thereby for countries to be aware of their own ranking in international evaluations, many countries have participated in international investigations such as PISA (Programme for International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study). Often the results of its participation have directly affected a country's policies (Dolin & Krogh, 2010; Ertl, 2006; Grek, 2009).

In Sweden, substantial efforts are being made to improve student results. In 2010, a completely new education act

(SFS 2010:800) was introduced. The previous one, which came into force in 1985 (SFS 1985:1100), addressed issues of modernisation. The Education Act 2010 contained some new features, of which one states that education in primary and secondary schools must be "based on research and proven experience" (1 Ch. 5 §).

In the preparatory work for the law (Ds 2009:25; Proposition 2009/10:165), it is noted that there was no such requirement in the previous education act (1985:1100), but, nevertheless, a similar clause can be found in the 1992 Higher Education Act (SFS 1992:1434). The 2010 Education Act's preparatory proposition (2009/10:165) sets out a clear position on research and science-based education at both the primary

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and secondary level. It stated that the national legal documents give teachers the freedom to choose the content and method of their lessons. Furthermore, it asserted such a choice requires a scientific approach whereby teachers must critically review their approaches in order to place knowledge into context. It is further noted that the choice of content and method and evaluation of the results requires a scientific approach and knowledge based in relevant research and experience. (pp. 223-224).

Even though these directives are unambiguous, the schools' staff and faculties seem to have difficulty understanding the implications of designing educational approaches based on research and proven experience. It also appears to be common that the faculty and staff suffer from a lack of experience and knowledge about how the law should be applied in their teaching (Skolverket, 2012, 2013; Rapp & Segolsson, 2017). Even though in the legal texts there is not an explicit elucidation of the goals the law was supposed to achieve, it is assumed in this study that the intentions were to improve the quality of teaching and learning in general.

Accordingly, this study focuses on and examines the legal requirement that education must be research-based in relation to learning and teaching. In this study we attempt to explain, from a frame-factor theoretical thinking, what conditions are needed for such a requirement to be realised. The main question is:

What conditions are required for a law, stipulating that education in primary and secondary school must be based on research and proven experience, to have a discernible effect on the work of school staff?

To answer this question we will use a theoretical approach. We argue that the analysis used in this study should be carried out in a frame-factor theoretical analysis inspired by Lundgren (1999), in combination with Goffman's (1974) and Persson's (2014) frame perspective.

Materials and Methods

Constitutional states are ruled by national legislations that make fundamental demands and set legal directives. Accordingly, a starting point for our research is that all Swedish schools are required to follow the same regulations

in order to improve the quality of teaching and learning in Swedish schools. However, school staffs have a complex reality and are expected to fulfil many legal requirements. Now one of the demands placed on them is to base their teaching on contemporary research but this may not be equally feasible for all teachers and all schools. (It should be noted that this study does not aim to determine to what extent teachers use research results or criticize them if not using scientific knowledge). There could be several reasons for teachers not using research-based knowledge, e.g., university research being difficult to translate into classrooms, or the impossibility of finding research offering solutions demonstrated to work. Furthermore, educational research can only tell us what worked in a particular situation, not what will work in any future situation (Biesta, 2007). To that it can be added that research outcomes often require contextualisation to be applicable to local conditions and school staff must thus have the competence required to do that work.

In order to find answers to the question about what conditions are required for a law to affect school staffs' work, we utilised in this study an analysis that identifies three arenas that cover both the national and the local levels (Lindensjö & Lundgren, 2000). First, at the national level (*the arena of formulation*) ideas and conceptions are formulated and explained in text. On this level, an entity wants to influence a different entity by prescribing a particular development; in this case, Parliament wants to influence school staff, improving the quality of teaching and learning through legislation. On the second level (*the arena of transformation*) the investigations, governing bills and parliamentary decisions are medially interpreted and transformed. On the third level (*the arena of realisation*) the governing documents are realised. The steering system gives opportunities for school staff to make inferences from their own values and beliefs. The "free space" (Berg, 1995) that the school staff has for making its own decisions in the local arena is large and some researchers argue that the coupling between the arena for formulation and the arena for realisation is loose (Weick, 1976).

The strength of theoretical perspectives is that they can make it possible to consider a question or a problem from different angles. Further, theories can help increase knowledge about a particular phenomenon. However, a theory can never claim to be comprehensive or show the full picture of a complicated reality. "Similarly, for theories regarded as tools: their truth-value can be explained precisely as a structural agreement or

correspondence with features of reality” (Høyrup, 1995, p. 295). Morgan (2006) argues that the theory through which we observe a situation decides what we can observe. Depending on a person’s point of view and the theory that is used, that theory can form a background for resolving a current question. However, it can only show a limited part of a complex reality (Dalin, 1994).

In this analysis, the outcomes are considered from a frame-factor theoretical perspective (Lundgren, 1999). Common frame factors are teachers’ competence and laws, etcetera (Dahllöf, 1967). The frame-factor theory does not, in a classic sense, work in a strict law-governed context, but only with necessary conditions. Consequently, it can only explain that “what happened could happen”, but not more precisely “what made it could happen”. The possible prediction is instead “what could not happen given certain circumstances” (Lindblad, Linde & Naeslund, 1999). The theory was later developed and broadened by Ulf P Lundgren. Persson (2014) notes:

The later development of the frame factor perspective maintains the empirical emphasis but also contextualises the teaching process in a broader way, inspired by educational sociology and easily connected to several other theories in the 1960s and 1970s that analysed education in the light of societal structures, systems, cultures, codes, and other factors that were supposed to limit the possible development of the school. (Persson, 2014, p. 3)

Further, this perspective implies that “...a theory on how different restricting factors make possible or impossible a certain teaching frame and consequently notes the freedom of action inside the frame” (Callewaert & Lundgren, 1976, p. 79). The frame-factor theory, to a high degree, addresses factors outside of education “[...] that are limiting the actual teaching process over which teachers and students have no control” (Lundgren, 1999, p. 233). We also want to consider Goffman’s frame perspective (Goffman, 1974), which was developed by the phenomenologist James (1950), who describes frames as “the image in the consciousness”, which suggests that he means frames of reference for our consciousness. Goffman uses James’ frame concept for the consciousness that constitutes the frame or code that can be meta-communicated, where Goffman links the frames together with definitions of situations such as social

interactions. Goffman defines the frames of a situation as “...built up in accordance with principles of organisation which govern events—at least social ones—and our subjective involvement in them” (p. 10f.). According to Persson (2014), frame analysis refers to the organisation of experience:

(1) the individual’s knowledge (more exactly to her or his former experiences and her or his immediate gathering of social information through scanning of others in close proximity), (2) social interaction (where definitions of situations shared with others are essential), and (3) the social dynamics of the situation (that are created by social interaction in a given context). (Persson, 2014, p. 5)

Persson (2014) further holds that frames may be understood as cosmologies that not every individual is aware of and that are taken for granted. Goffman claims, “My aim is to try to isolate some of the basic frameworks of understanding available in our society for making sense out of events and to analyse the special vulnerabilities to which these frames of reference are subject” (Goffman, 1974). He argues that the organisational premises are “sustained both in the mind and in activity” and are something that human cognition “arrives at, not something cognition creates or generates” (Goffman, 1974, p. 247). The idea dates back to Plato’s *doxa* concept (Plato, 380 B. C. E./ 2015), which Bourdieu (1977) treats as that which in the natural and social world is treated as so self-evident that it is not subject to self-reflection.

In this analysis, we use Lundgren’s (1999) and Goffman’s (1974) frame analyses in combination (Person, 2014). We assume that some frames delimit principals’ and teachers’ freedom of action; they operate on a systemic level and cannot be influenced by individuals. To this restricted possibility, we add the theory that the individual frames are formed through experiences of social interaction in which shared definitions that are taken for granted govern the action. Taken together, the frames determine the inertia and the social ‘flexibility’ that make it possible to understand how political decisions and governance influence education but also how nuance shifts happen when central decisions are to be put into practice.

Research and Proven Experience in Schools

Research is commonly defined as a systematic investigative process with the goal of developing new (useful) knowledge. Research-based knowledge must be systematically tested through a regulatory framework and procedures created within the scientific community (Denzin & Lincoln, 1994; Cohen & Morrison, 2007; Håkansson & Sundberg, 2012). Moreover, research is commonly divided into two distinct fields: basic research and applied research. Basic (pure) research is primarily conducted without regard for practical consequences. According to the OECD, “Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view” (OECD, 2002). Basic research provides scientific capital and is intra-disciplinary. On the other hand, applied research consists of systematic studies that attempt to solve practical problems. In the words of the OECD, “Applied research is original investigation to acquire new knowledge directed primarily towards a specific practical aim or objective” (OECD, 2002).

While the distinction between pure research and applied research is well-defined, in fact, research can be used, as Louis Pasteur strove to understand (Stoke, 1997), both for fundamental scientific understanding and for practical application. Pasteur’s quadrant (see Figure 1) depicts the relationship between these goals of research (pure versus applied) in two dimensions, with the horizontal axis representing practical application and the vertical axis representing basic research:

		Is the research looking for practical application?	
		No	Yes
Is the research looking for theoretical understanding?	Yes	1	4
	No	2	3

Figure 1. Pasteur’s quadrant (Stoke, 1997)

Our application of Pasteur’s quadrant in relation to research and education is as follows:

1. *Box 1 (goal = theoretical understanding).* Much of the research carried out at universities would be placed in Box 1; practitioners in primary and secondary schools, on the other hand, seldom seek theoretical understanding.

2. *Box 2 (goal = neither theory nor practical application.)* Included in this box would be systematic surveys such as national evaluations. In this type of research there is little need to develop theories, and there is only an indirect connection to problem solving. Such research results are of interest mainly on a meta level.
3. *Box 3 (goal = practical application of theories but no theoretical understanding).* In this box we would place research that, in order to increase pupils’ learning possibilities, employ teaching experiments, and known theoretical frameworks are used as general guidance.
4. *In Box 4 (goal = theoretical understanding + practical application).* Here we place those efforts that, to solve practical problems, borrow from previous research and design. The effects on teaching practice of applying theoretical knowledge can then be studied. Such designs could be used in learning studies, for example. The knowledge that is built from this approach is synthesised into a content-oriented theory.

Research differs from everyday assumptions and from actions that are taken for granted, whether those occur in a professional context or in ordinary life. This means that a requirement that teachers conduct research could be perceived as an aspect of accepted professional practice (Dewey, 1929/2013; Hargreaves & Hopkins, 1991; Elliot & Adelman, 1976).

The new law says that education must be based not only on research but also on proven experience. The concept of ‘proven experience’ has its origins in evidence-based medicine. However, the concept is not well defined as a subject of research (see Kroksmark, 2016). In this context, ‘proven’ indicates something that is tested, documented and confirmed in professional activities. ‘Experience’ has many different meanings in philosophy, and phenomenologists (e.g., Heidegger, 1927/2010) have suggested expanding the term to ‘lived experience’, which includes a clear interdependence between the human state and the world, which is also considered as ‘being-in-the-world’. Merleau-Ponty (1962) indicated that an intentional bodily subject is a prerequisite for lived experience. In this sense, experience is the life-world based on our existence as bodily subjects situated in space and time in coexistence with other human beings. Applied to the field of education ‘proven experience’ means that principals and teachers exist in contexts in

which they perform documented educational actions in a systematic manner that yields reliable professional knowledge. The Swedish National Agency for Higher Education (Högskoleverket, 2008) argues that proven experience requires that there are specific findings, which are documented, and that each case must be communicated so it can be shared with other teachers. Furthermore, the result must be examined in terms of its criteria as well as its ethical principles (Högskoleverket, 2008).

In view of this requirement that teaching and learning must be based on research and proven experience, the Swedish National Agency for Education (Skolverket, 2013) noted that principals and teachers are ill-accustomed to basing their work on research or proven experience. Moreover, it observed that the connection between teachers' professional work and research about teaching and learning has historically been weak (ibid.). The reason for this poor connection is two-fold. First, it has not been the aim of research to generate useful knowledge for teachers. Second, teachers have not developed a research-based culture. This latter factor is the result of teacher education not sufficiently incorporating research in its curriculum and thus many student teachers not having opportunities to establish research competencies (SKL, 2016).

In 2012 a parliamentary report (RFR, 2012/13:10) addressed the results of a study of Swedish teachers and principals in regard to the concepts of research and proven experience. Nearly all study participants were familiar with the legal requirement, but they held different views about the concept's meaning. More than 50% of the teachers and principals thought that their undergraduate courses gave them 'very good' or 'good' preparation for acquiring and using knowledge from research. A majority of teachers and principals reported that they need more knowledge from contemporary research to develop further their teaching. Nonetheless, only 25% of principals and 10% of teachers said that they had a plan for implementing new knowledge obtained from research. In terms of acquiring new knowledge, nearly 50% of the teachers believed that they received support from their school leaders. Approximately 90% of teachers and nearly the same percentage of principals said that they did not have sufficient time to utilize knowledge from new research. At the same time, 40% of teachers replied that weak support from their leaders prevented them from utilising contemporary research (RFR 2012/13:10, pp. 4-5).

As mentioned above, research does not always provide useful knowledge to practising teachers. Additionally, scientific articles are often published in international journals that use complicated, academic language. Furthermore, many teachers have little or no access to these journals (Skolverket, 2013). Nevertheless, the legal requirement exists now that education is to be based on research and proven experience, and teachers must determine what this means for them, how it differs from everyday knowledge and how it is possible to translate into teaching. Kroksmark (1995) suggested a revolving model of main teaching competencies:

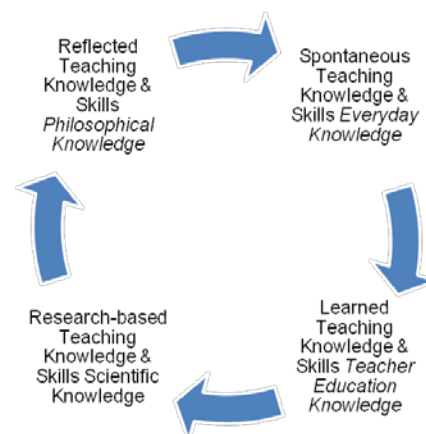


Figure 2. A model for understanding four different levels in a holistic approach to teaching (Bengtsson & Kroksmark, 1993).

Spontaneous Teaching Knowledge and Skills: This, the least developed form of knowledge, is used in everyday interactions and is autodidactic. For example, parents who are not teachers teach their children without pedagogical training; or, when we are asked for directions, we attempt to give them without exact knowledge. Likewise, teachers who are asked unfamiliar questions attempt to answer them. When we do not know the information we want to teach, we use spontaneous, unthinking and unconsidered teaching.

Learned Teaching Knowledge & Skills: This is knowledge possessed by teachers who have degrees in education. This educational formation provides knowledge and skills to develop professional competence. Learned knowledge is common to all teachers who have a degree.

Research-based Knowledge & Skills: This is the level at which the foundation of the teaching profession is laid. Teaching becomes knowledge-based through using the results of research to improve the profession.

Reflected Teaching Knowledge & Skills: The most developed level in teaching is that at which teachers systematically reflect on the theory and practice of their professional competence. This knowledge level is philosophical.

Implementation of a legal requirement

Implementation is defined as turning strategies and plans into actions to reach strategic objectives and goals. Fixsen *et al.* (2005) argue that implementation is a process, not an event. Furthermore, implementation does not happen all at once or necessarily proceed smoothly; an absence of strategies may cause serious problems for implementation.

In conducting this study we have not found any discussions of implementation strategy between the period when the Swedish law was enacted and when the resultant new requirement was put into effect, nor were there any discussions of how the law was supposed to affect schools. If local actors on their own have to determine how to interpret and use a law, then there is great risk that the law's intentions could be corrupted or ill-applied. Even though no specific directives were given about implementation and local interpretation of the law, the parliamentary report (RFR, 2012/13:10) as well as a report from the Swedish National Audit Office (RIR, 2013:11) elucidate some key points that should be considered in the dissemination and implementation. The reports highlight three main ways to communicate knowledge:

1. *Passive diffusion.* Information is published on the web.
2. *Active dissemination.* Information is sent directly to teachers.
3. *Implementation.* Professional support is made available in the teachers' classrooms and suggestions are offered for further local work.

Information about the new education act that is disseminated on the web (passive diffusion) has very limited impact, whereas direct support in the classroom by active dissemination and implementation appears to be more successful (RFR, 2012/13:10; RIR, 2013:11). To link these concepts to the legal requirements about research and proven experience, Parliament commissioned the National Agency for Education to compile and disseminate knowledge about the new law and obliged it to report to Parliament on developments. In these (infrequent) reports the National Agency stated only

that there are differences regarding the extent to which it has achieved its purpose in local schools (RFR, 2012/13:10).

The National School Inspectorate has, among other agencies, the task of monitoring schools and assessing applications to run independent schools (Skolinspektionen, 2015). A search on their website with the words "research and proven experience" yields few hits, and there is no evidence of any systematic follow-up regarding whether municipalities or local schools are basing teaching and learning on research and proven experience. Indeed, no cases have been reported in which a school or a teacher has been brought to court for failing to fulfil the legal requirements. Accordingly, it appears that the authority has not decided to what extent it will focus on this legal requirement.

Thus, the national strategy for dissemination appears to be passive diffusion. There is a risk that the Education Act's requirements will never become a reality at local schools. Parliament has passed a law that aims to improve teaching quality and pupils' learning in schools but at the same time is undermining the process by not using the available knowledge on best practices for implementation.

Results

When the Education Act (2010:800) came into force, it included the requirement that education—specifically, teaching and learning in primary and secondary schools—must be based on research and proven experience. The law appears to have been inspired by higher education requirements. From a frame-factor perspective, a law is established 1) in the arena of formulation, 2) in the arena of transformation when it is transformed into text and becomes reality, and 3) in the arena of realisation. A common element at all of these levels is the social frames that understand the frame factors as human in the sense that they are established through interactions among people.

1. *The arena of formulation.* The political authorities enacted an education act stipulating that teaching and learning in primary and secondary schools must be based on research and proven experience. During the preparatory phase, it does not appear that there was any discussion or debate about the proposal either before or after it came into force. The decision was clearly top-down in nature. Politicians have had

a unique monopoly on this specific issue; the act was established as a frame factor that principals were not, and are not, able to influence. The politicians adopted a social, common and taken-for-granted frame that makes the law self-evident on the political level, with no need for an internal conceptualisation. Our understanding of the decision process is that the centre aims at improving the quality of education. To legislate an issue is the most drastic measure a body can resort to affect practices.

2. *The arena of transformation* could be considered ‘glue’ between the arenas for formulation and realisation. After the law was established, Parliament was responsible for its transformation and implementation. Transformations require translations between levels in a system, in this case, between the law’s political ambitions and the reality of schools. Transformation must also include translations between an abstract legal text and its concrete application so that the abstract ambition can be implemented in a concrete action that should lead to the expected results. There are no documents on the governing level or at the centre describing how transformations (translations between levels) should be understood or implemented.

Transformations must be defined by content that describes what should be transformed and from whom to whom. After this part is finished, implementation ensues. An entity should be implemented, and it should be implemented as something completely specific. In our case, the entity is a law that should be implemented on the terminological or lexical level, but that must also be conceptualised so as to be perceived and understood in a social context as something that is exactly delimited, described and substantial. Considering research and proven experience, a quality, aspect or phenomenon appears as the definition that should be applied to schools. Accordingly, one crucial task during the legislative process should be to prepare for implementation. In 2010, the requirement was proposed, but it was not executed through strategies or special funding. There has been no noticeable discussion among politicians, principals or among teachers about the lack of implementation strategies or funds. Researchers have also refrained from taking part in the discussion of what is meant by “education in primary and secondary schools should be based on research and proven experience”.

In the context of a lack of governance, translation and instructions from the centre for implementing the law and the absence of any discussion on how to interpret the law, a vacuum arose in which principals and teachers began to wonder about the status of the law and how, or whether, it should be applied in schools. In this vacuum, the Swedish National Agency for Education entered the process and, in 2013, began attempts to conceptualise ‘research’ and ‘proven experience’ as they should be understood in schools. The agency took on the responsibility for interpreting the act and described its meaning and practical application (Skolverket, 2013). Thus, the transformation of the basic concepts was brought back to the arena of formulation. The centre took the responsibility for defining a law that it instituted and decided on.

In 2015, the Swedish Parliament gave a commission to the National School Research Institute, which is fully financed by Parliament, to develop definitions of the concepts of ‘research’ and ‘proven experience’ for special application in education. The institute began its work in January 2015 and launched in September 2015 a description of what is meant by evidence-based education. The concept differs from the basic concepts in the act such as when, for example, the agency discusses research, proven experience and evidence. No definition is presented, and distinctions among the three concepts are not made. Rather, the agency speaks in general terms about “the importance of links to research in education”.

Yet another authority funded by Parliament, the Swedish National School Inspectorate, whose principal task is to evaluate and inspect individual schools, has not presented any systematic evaluations regarding the extent to which local schools base their education on research and proven experience.

Parliament has so far not given to the concerned parties -- the municipalities, the schools, principals or teachers – the necessary systematic directives or definitions about translating research and proven experience into schools despite the fact that Parliament at different levels has committed itself to providing such definitions. The result has been that

the end users have not been given the tools to interpret, understand or use the act.

3. *The arena of realisation.* Legal requirements must be met and put into reality. The impression we receive from the teachers is that they lack knowledge of how the new law will affect their daily work. Parliament and/or the authorities have provided no comprehensive information of what is meant by research and proven experience in education nor about whether the act has legitimacy in terms of quality improvement in teaching and learning.

Another conception of the act and its implementation deems that teachers should acquaint themselves with and consume research-based knowledge and proven experience. This interpretation implies that principals and teachers are the recipients of reliable knowledge in schools and thus university research should be adopted and used by the people who work in schools. The scope is thusly expanded beyond professional competencies to comprise teaching, i.e., the content and the basic values. Studies show that nearly all teachers are familiar with the legal requirement, but they have different views of the concept's meaning. At the same time only 10 % of them have a plan for implementing research-based knowledge. Furthermore, a majority of principals and teachers say that they do not have opportunities to utilize knowledge from new research (RFR 2012/13:10). In addition, superintendents claim that overall accountability for research-based applications in schools are still incumbent (Rapp & Segolsson, 2017). At the same time, four out of ten teachers think that weak support from their supervisors prevents them from utilising contemporary research. Some argue that research does not always yield knowledge that is useful to teachers, and scientific articles are often published in international journals with complicated, academic language. Further hindrance is the inability for teachers to examine critically theories and methods if the requisite knowledge is lacking. Furthermore, education research is mainly carried out at universities, whose main aim is not necessarily to generate useful knowledge for teachers and additionally they have encountered barriers to becoming a natural part of education in primary and secondary schools (Håkansson & Sundberg, 2012).

Discussion

Teachers have to engage pupils with various conditions and needs. Basing teaching on research could facilitate their work

and improve student outcomes. One difficulty is that research results are not always unambiguous or immediately translatable into teaching, posing a challenge to lawmakers aiming to affect teaching. Accordingly, one condition for implementing laws is that teachers and principals must understand the content and meaning for teaching and learning.

A law presupposes observance, especially in countries built on law and order. In countries that are centralist in their governance of education, decisions made by Parliament or the authorities must be transformed and implemented into practice. Transformations or implementations must be performed by someone knowledgeable unless the alternative is that the end users are told to interpret, understand and use the decisions made by the centre. No such hermeneutic processes have consciously been put in place with respect to the law that requires education to be based on research and proven experience. An additional alternative is that the end users force new knowledge and new demands that eventually enforce legislation.

It is Parliament that ultimately governs the schools, principals and students because it is from the Parliament that the municipalities that receive the mandate to set school and education policies and that in turn mandate the principals to implement the policies. Parliament evaluates and controls whether the municipalities, individual principals, teachers and pupils implement and manage the mandates in accordance with the central government's intentions. Deviations are reported, and changes and improvements can be made so that the implementation will reflect the intention. Municipalities, schools, principals and teachers can also be disqualified by Parliament if the quality is below what is expected. In Swedish society there is a long tradition of the end users following central directives and a long tradition of municipalities and individual school actors following laws, ordinances and policies for schools.

This type of relationship existing between Parliament and individual schools involves a thorough acceptance of central governance, i.e., there is a symmetric relationship between executive power and those who are governed by the power. Such an ideology presupposes that every new central decision is accompanied by clear instructions about how the decisions should be understood and applied. Every deviation in the interpretation by end users risks jeopardising equal education for all children. The consequence is that principals and teachers – to prevent

uncertainty concerning how Parliament's education intentions should be implemented -- expect to receive guidelines, commentary texts, application instructions,

In the case of this new education law we found this not to be the case. This education act, which regulates the most decisive and important foundation of education, was not accompanied by any strategy for transformation or implementation. Parliament has issued no instructions, case descriptions or other comments, either in connection with the preliminary work on the act or when it was passed by the Swedish Parliament in 2010. This absence implies that the act functions as a frame factor (Lundgren, 1999) that is both abstract and concrete for principals and teachers; they can neither disregard nor follow the education act as a social frame (Goffman, 1974) because it exists on a knowledge level that is autodidactic, spontaneous and unreflecting (see Figure 2). The act affects principals and teachers by its existence but lacks substance in that it does not specify content or clarify how it should be implemented. The consequence is that principals and teachers attempt to interpret the act in various ways, and these differing implementations risk undermining the act. The act then risks failing at one of its most important objectives: to increase the quality of teaching and learning.

If any group is required to exercise an activity that is regulated by a law in a law-abiding but where there are differing opinions about how it should be obeyed, that group will experience great uncertainty. In response the end users may exert pressure on the central authority via demands for information about the meaning of an act, and the governing body will commission different authorities to explain the content, importance, objectives and implementation of the law. In this study's analysis we see that the autodidactic quality might be made permanent because the authority, not the scientific community or the profession (the teachers themselves), substantiate the frame factors and frames for the work. In this way, at the central level, there is no exact and relevant knowledge of research and proven experience. Consequently, the representatives of the education authority copy the scientific community's definitions of research and proven experience, including definitions from sectors and professions other than education, because there is no definition developed for education per se. This creates a risk that the authority will transform and implement hybrid research methods; for instance, medical understanding and application of research and proven experience would be transferred to principals and

teachers. Research basis and proven experience will then be conceived of primarily as medical/scientific/mathematical, but teaching is a humanistic activity. The paradigmatic differences between incommensurable understandings of research, (normal) science, and research methods that yield reliable knowledge all create problems for principals and teachers in the realisation phase. Comparisons among sciences create doubts about all research on education that does not follow a certain research tradition and regulations that are accepted intra-scientifically.

The consequence is that only quantitative research is regarded as scientific in limited local environments, and principals and teachers can only be consumers of scientific-based research because scientific studies are impossible to implement in local contexts; thus, teachers' classroom research with small populations and teaching processes that they participate in creating will be impossible to implement. When authorities interpret, describe and copy scientific paradigms from professions other than education, the knowledge will remain autodidactic (Figure 2).

We suggest that an education act based on research and proven experience should be launched as a hermeneutic process whereby research on education is critically interpreted and locally transformed into didactic actions that can be performed by municipalities, schools and their principals and teachers and that Parliament and the authorities should encourage such development. The advantage is that the situational and contextual research in schools would be given a clear position as a scientifically accepted framework for education based on research and proven experience. From another standpoint, teachers are encouraged to conduct research in schools, participating in research-based studies to yield knowledge they can use in their daily teaching. This proposal is not new; John Dewey launched the idea in 1929 in *The Sources of a Science of Education* (Dewey, 1929/2013). Under the heading *The Teacher as Investigator*, he emphasises teachers' opportunities to contribute to research: "It seems to me that the contributions that might come from classroom preachers are a neglected field; or, to change the metaphor, an almost unworked mine" (Dewey, 1929/2013, LW, s. 23). Dewey argues that teachers should conduct research in the classroom because their proximity to the pupils is important. He also argues that teachers can constitute a bridge between university research and that conducted by teachers and thereby minimize the problem of teachers lacking

research knowledge and research results being trivialised when they reach schools. These proposals further suggest that teacher education must contain considerably more knowledge of and exercises in classroom research; alternatively, education should be divided into two branches for teachers: teaching and research.

Scientific knowledge in Sweden is primarily produced at universities and is not frequently requested by school staff (depicted previously in Figure 1). In this light, it is surprising that the requirement concerning research and proven experience was not accompanied by clear implementation strategies. Accordingly, municipalities and schools have locally decided to what extent they will prioritise this requirement. A school system is interrelated; a change in one part will have repercussions in others. In a local school community, the arena of realisation has multiple levels. The first level is the local principal and the board, who have the ultimate responsibility for primary and secondary schools. Most commonly, they have an officer (e.g., superintendent and director of education) who is a representative of the board (Rapp, 2011; Rapp & Segolsson, 2017). This officer is often the head of the local principals, who in turn are in charge of their schools and direct the teachers. The legal requirement is supposed to be met in teaching and learning. The requirement thus must pass through multiple levels, which brings about questions regarding coupling of systems. As noted earlier, school activities are largely built around autonomous professionals in a loosely coupled system. The frame-factor theory, as mentioned above, can predict what cannot occur in given certain circumstances. Applying the theory to the requirement that education be based on research and proven experience, it is clear that the requirement was not accompanied by any national implementation strategy; therefore, primary and secondary schools, as components of a loosely coupled system, could decide what to do or to do nothing. Simultaneously, there are significant competency differences among school staffs and if competence is lacking, then the possibility to use research-based knowledge is missed. For the requirement to have an impact, it must be implemented into daily teaching.

The local school is a part of a tightly coupled system

	No	Yes
The local school staff is skilled in how to use scientific knowledge	Yes 1	4
	No 2	3

Figure 3. School staff and scientific knowledge in the school system.

However, the main problem is that poorly prepared staff often must implement plans in a loosely coupled system. Accordingly, one can observe factors that prevent research and proven experience from being used in schools. From a frame-factor theoretical perspective, the prediction is that the legal requirements will not lead to any fundamental changes in teachers' work in the near future. As an important consequence, the law will not be realised at the method level in terms of increasing the quality of teaching and learning. The reasoning is shown below and depicted in Figure 3:

1. *Box 1: Skilled but not tightly coupled system.* School staffs are skilled in using scientific knowledge, but as they are given poor transformation and implementation strategies from Parliament, they are not aware of the conditions of application. They have not been involved in any implementation work; thus, each staff member makes her/his own decisions on an autodidactic level.
2. *Box 2: Not skilled, not tightly coupled system.* The scientific competence among school staff is low, and schools are parts of a loosely coupled system. The legal requirement has very limited potential to make an impact.
3. *Box 3: Not skilled, tightly coupled system.* Local schools are part of a system, suggesting that efforts have been made to implement the legal requirement. However, because of their low scientific competence, staff has difficulty fulfilling the requirements of the act. The legal requirement has little chance of affecting schoolwork and/or results.

4. *Box 4: Skilled, tightly coupled system.* The legal requirement to base education on research and proven experience is well known in primary and secondary schools. Highly skilled school staff must meet the requirement, which will affect the schools' work and results.

Conclusion

We set out to examine the question "What conditions are required for a law, stipulating that education in primary and secondary school must be based on research and proven experience, to affect school staffs' work?" We feel that this study's aim has been achieved and that, in our analysis, the question has been answered.

In conclusion, one basis of successful implementation is careful planning. In this instance, there was no such planning. During the legislative process, there were no discussion of the proposal; consequently, the decision was top-down in nature. Further, no systematic transformation or translation has taken place on the local level. Accordingly, principals and teacher interpret the requirement in different ways, risking undermining the intention of the act. The result is an unending cycle that has not resulted in the end users being given an opportunity to interpret, understand or use the act. Thus, there is a risk that the acts intention to increase the quality of teaching and learning could fail.

Even if this question has been answered, a number of new questions also have emerged. One such is how important the requirement is for the legislators. The question regarding research and education is under discussion at the state level. In January 2015, the Swedish Minister of Education, in a debate article (*Dagens Nyheter*, 2015) argued that political parties must stop fighting and agree on the education policy. The minister claimed that governing documents "shouldn't be repainted every time the colour of Parliament is changed" and thus that changes in the education system have to be anchored in contemporary research. This article indicates that the policy, independent of Parliament's make-up, is largely based on ideology, not research.

One main goal of the National Education Act is that schools be made equivalent across the country (SFS 2010:800, Ch. 1 § 9). Thus, students in primary and secondary schools, regardless of their background and economic situation, their parents' education levels, etc.,

will be offered an equal education. Is there a risk that the legal requirement on a research-based education will be met differently in different schools and not systematically followed up by the National School Inspectorate, thereby decreasing this equivalence? That question could be an interesting topic of future studies concerning research and proven experience in primary and secondary schools.

The results of this study demonstrate the importance of understanding the effects of the new legislation. Here, Parliament established a law in a top-down manner in an attempt to improve the quality of teaching and learning. From an international point of view, it is important to follow this work. If the strategy is successful, more countries will follow. For that reason, it is important to describe and understand education based on research and proven experience.

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