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Measured Lives in Educational Psychology

Klaus Nielsen

Department of Psychology, University of Aarhus, Denmark

Jacob Klitmøller

Department of Psychology, University of Aarhus, Denmark

Abstract

Why is the work of educational researcher John Hattie's work so popular today? This is the question we will try to answer in this paper. Based on a very large empirical database, Hattie calculates the effects of numerous educational interventions and factors influencing student achievements. Despite documented methodological flaws in his work, Hattie's work keep attracting the attention of policy makers, teachers and educational researchers all over the world. We propose to understand the popularity of Hattie's work in relation to the ongoing debate about the legitimization of schooling – using Habermas' (1976) work Legitimation Crisis as point of departure. Our claim is that Hattie is offering a theoretical synthesis of effective teaching as a way to legitimize modern schooling. However, there are a number of problems with this synthesis, most notably that it does not include the pupils' intentions for participating.

Keywords: Visible Learning, Legitimation, Technical Rationality, Education, Schooling

Measured Lives in Educational Philosophy

In later years, so-called evidence-based research with a focus on learning goals, learning outcomes, tests, and feedback has strongly influenced educational thinking in the Western world. Hattie's (2009) work on *Visible learning* has become central for this movement, and our critical considerations in this paper are aimed at his work as a central example of the evidence movement in education. The critical question we will be dealing with is *why* is there a strong fascination with Hattie's work—or put more broadly—with this kind of evidenced-based quantitative research?

In the present paper we initially argue that the fascination cannot be related to the quality of Hattie's (2009) empirical work. As we have showed in several papers, and in line with a number of other researchers, Hattie's research exhibit substantial problems, even when evaluated on its own premises (Klitmøller & Nielsen, 2017, 2019; Nielsen & Klitmøller, 2017, Snook, O'Neil, O'Neill & Openshaw, 2009). Even so, Hattie's work has proven highly influential and we argue, that there are several reasons for this— among them, the tools he is offering policy makers and schools in the form of a unifying theory of teaching and learning by which schools may be more readily “steered” as well as their effort legitimized.

Next, we delve into the question of the legitimization of ‘school’ and ‘schooling’ – a question that has experienced a resurgence in recent years. Taking departure in Habermas' (1976) formulation of a ‘legitimacy crisis’ we question what role Hattie's work might play for the legitimization of school. More specifically, we aim to show that Hattie offers what ‘traditional’ evidence-based research has not (and we would add, cannot) supply: a model for (or theory of) good teaching and learning.

Lastly, we argue that in order to legitimize modern schooling, key participants – pupils, teachers and parents need to be included.

The Presentation of Hattie's Work

Not without fault on his own part, Hattie's central agenda is sometimes misrepresented (not least by those critical of his work). Most prominent in the reception of Hattie's work has been his ‘league table’ of educational effects. These are the result of the calculation of effects across a substantial amount of meta-analyses (at the time of writing: 1,200) based on and divided into a number of single effects (at the time of writing: 195) visualized as barometers illustrating the effect of each single intervention. It is this league table of effects that featured prominently when Hattie was touted as presenting an unparalleled resource for educational effects.

Although it is the substantial amount of data which has caught the public's attention, Hattie has always been quite explicit about it is not the empirical data which is the main point of his research. His main goal is to formulate a *synthesis* based on the data he has collected. Although it is the substantial amount of data which has caught the public's attention, Hattie has always been quite explicit about it is not the empirical data which is the main point of his research. His main goal is to formulate a *synthesis* based on the data he has collected. On the one hand, Hattie's work is based within a research tradition emphasizing the importance of quantitative data, however, on the other hand, Hattie (2009) identifies serious problems with the idea that large amounts of quantitative data can speak for them selves. Instead, what is needed, according to Hattie, is a unifying story – a theory – of what constitutes good teaching based on quantitative data. What Hattie wants to solve is the lack of coherence in evidence-based research and to create a model that will align teachers with the synthesis he is proposing. This theoretical aim is evident already in the first book on Visible Learning (Hattie, 2009) and all the way through to the present (Hattie & Nepper Larsen, 2020). Admittedly, what for Hattie counts as theory differs from what we consider a theory. In Hattie's own words: “I am a measurement researcher, I am a statistician, I am not a theoretician [...] But of course I have a very strong model of teaching” (Knudsen, 2017, p. 259). But just as much of the theory in Hattie's work is ‘unconscious’, in Costall's (2013) sense, it excerpts great influence on what Visible Learning is.

Through his books on visible learning, Hattie (e.g. 2009, 2013, 2014) has become a significant voice in the contemporary educational debate as well as policy on teaching and learning. In 2008, Mansell called Hattie's (2009) book *Visible Learning* the Holy Grail of teaching. Hattie's approach of using structured quantitative data, thousands of research studies, effect sizes, and, in the end, simple answers to complex problems was exactly what education policy makers and practitioners had been seeking (Zhao, 2018). Hattie's book about visible learning has spread like wildfire around the globe: Evans (2012) wrote, "He is not the messiah, but for many policy makers he comes close. John Hattie, possibly the world's most influential education academic, has the ear of governments everywhere". In a Danish context, educational researchers have talked about "the Hattie-revolution" (Qvortrup, 2015), and others have presented Hattie as the researcher par excellence on whose results the teachers in Danish primary schools can (and should) build their teaching approach. Skeptics were warned: "People who refuse to use Hattie's and others' results accept a substantial moral responsibility" (Hansen et al., 2015, p. 7)

Hattie's unified model came at a very opportune moment given the growing concerns from a number of nations all over the world about how their educational systems were falling behind in the educational race. Thus, in a time where international comparisons of educational systems had become the context for national educational reforms, Hattie's work was sent from heaven.

Problems in Hattie's Empirical Research

Even though our argument is not dependent on the fact that Hattie's research is flawed, the fact remains that there is a significant disparity between the reception of Hattie's work, including the trust in his findings, and the actual quality of his research. Precisely the hitherto largest empirical base in educational research is by commentators and some researchers taken as evidence in and of itself of the validity of Hattie's claims (Polanin, Maynard, & Dell, 2016). In some quarters it leads to the problematic assumption, that *because* of the vast empirical base, Hattie's work simply presents undeniable facts. However, in our research (e.g. Klitmøller & Nielsen, 2017, 2019; Nielsen & Klitmøller, 2017) and in line with other researchers (e.g. Snook et al., 2009), we have documented substantial flaws in Hattie's empirical research. We have listed some of these flaws in Table 1.

Table 1: Empirical Problems in Hattie's Work

| Main problems | Description | Comments |
|---------------------------|--|---|
| Reduction of complexity | Focus on one causal factor is linked to one particular effect. | Homework, class size, and feedback are central examples. |
| Reduction of complexity 2 | Elimination of moderating factors like the pupils' SES | Pupils' SES is an important moderator for their learning. |

| | | |
|--|---|---|
| Setting decontextualized standards for what constitutes an effect | The cutoff is $d = 0.40$. This is the cutoff that Hattie used for all his categories. | Contra example: Low doses of aspirin to prevent heart problems |
| Making random divisions in the material constituting effect sizes | The division of effect sizes hide important differentiations. | Homework as an example |
| Comparing (measuring) different phenomena—He compares apples to oranges. | By entering a large number of meta-analysis in his synthesis, Hattie included studies that measure different phenomena. | Feedback as an example |
| “Garbage in, garbage out” | By entering a large number of meta-analysis in his synthesis, Hattie included studies with low empirical quality. | Feedback as an example |
| Statistical problems | There are a number of statistical problems (see, e.g., Bergeron, 2017; Simpson, 2017; Topphol, 2011). | Bergeron (2017): “In summary, it is clear that John Hattie and his team have neither the knowledge nor the competencies required to conduct valid statistical analyses” (p. 245). |

Note. SES = Socioeconomic Status.

Given the methodological flaws in Hattie’s methods and the growing international critique of his work, the question is why Hattie’s work remains being so popular? This is the question we will turn to now.

The Fascination of Hattie’s Work

The deep-rooted problems in Hattie’s empirical design, on one hand, and the popularity of his work, on the other, raise the question of what it is in Hattie’s work that fascinates. In contrast to most other critiques of Hattie’s work, we claim that it is actually his *theoretical* approach to educational practice that fascinates many that turn to Hattie’s work to solve the current issues of the educational system.

A Technical Theory of the Social World

His critique of evidence-based research notwithstanding, we claim that theoretically, Hattie is strongly inspired by what Schön (1983, 1987) termed *technical rationality*. Technical rationality is the heritage of Positivism, the powerful philosophical doctrine that grew up in the nineteenth century as an account of the rise of science and technology and as

a social movement aimed at applying the achievements of science and technology to the well-being of mankind. (Schön, 1983, p. 31)

The engineer's design and analysis of materials and artifacts, as well as the physician's diagnosis and treatment of disease, has become the model or theory of a science-based technical practice also in much of education (Hargreaves, 2000; Biesta 2007). Technical rationality paves the way for means–ends thinking in the social sciences, psychology, and education wherein problems are understood as entities in themselves beyond the context of which they are a part and they can be solved by consulting and applying knowledge from basic science. A central ambition of technical rationality is to identify causes that necessarily lead to particular effects based on observations of the connections between cause and effect and, hence, to generate theories that can solve the practical problems at hand.

To understand in a deeper and more comprehensive sense why Hattie's work fascinates educators, we have to contextualize the problems the educational system is currently facing. After nearly 50 years of a liberal pupil-centered pedagogy dominating educational thinking in the Western world, times have changed. With the growing competition between nations in the educational arena and a conservative critique of its poor learning outcomes, the educational system in the Western world is facing a serious crisis of legitimation. As the previous Danish prime minister, Anders Fogh Rasmussen, said in 2003, taking the first of many steps to shift the focus of Danish educational policy, the time for roundtable pedagogy is over. This was on the heels of the first effects of Denmark having joined PISA and the shock that the national educational system was a long way from meeting expectations. In the span of a few years the discussion of the quality of the educational system changed from a domestic horizon to one of international comparison – much as the PISA-program had intended (Schleicher, 2010). What the PISA-program did *not* offer, were the tools by which a nation might use to change their ranking. The scene has been set for the theory of technical rationality that promised predictable learning outcomes if teachers followed particular methods, and in that respect, Hattie was the right man in the right place at the right time. In what follows, we argue that to understand the popularity of Hattie's work, we must address his pedagogical thinking as part of the legitimate crisis tormenting the modern educational system.

The Legitimation Problem as a Central Educational Problem

To understand the fascination with Hattie's work and the tradition that this kind of pedagogy represents, which has become so prevalent in the educational system today we propose it is necessary to analyse the ways in which the changes in the management of the educational system has demanded changes in the organization of the school system (for instance the introduction of more national testing and an increased focus on preparing for further education). It also challenges existing ideas of what the purposes of modern schooling are..

Below, we argue that the growing fascination of Hattie's work are closely related to discussions of the purpose(s) with modern schooling. This is essentially another question than the question of how to make schools more efficient. And we suggest, that one way to avoid falling into one of the two prominent camps (of either 'Bildung'-informed or evidence-based perspectives) the concept of *legitimation* as suggested by Habermas may offer alternative ways to formulate the issues, and ultimately to point to new ways of discussing the purpose of schooling.

By focusing on the concept of legitimation – which features in the title of Habermas’ (1976) book *The Legitimation Crisis* – we will suggest, that the fascination with Hattie is not only the promise of more effective teaching, but to foster dialogue concerning the purposes of education.

Habermas and the Legitimation Crisis

By turning to the Habermas’ concept of legitimation crisis, we aim to widen the discussion of Hattie’s work and popularity. What Visible Learning accomplishes (all above caveats notwithstanding) is to supply a *theory* of teaching (and by extension also of education more broadly) that directly challenges traditional understandings of the role of education. Indeed, this is the main point made by central educational researchers in the Nordic countries, who find Hattie’s work relevant as a frame for future research and practice in schools, even if they do not agree with specific analyses made by Hattie (Nordahl, 2019).

The analysis of the crisis of legitimation is particularly linked to the version of Marxism that Habermas and Honneth (Habermas, 1976; Allen & Mendieta, 2019; Finlayson, 2005) have formulated in recent years and their preoccupation with analyzing the societal dynamics that characterize late-modern society (Allen & Mendieta, 2019; Finlayson, 2005; Habermas, 1976). We will elaborate on the concepts of legitimacy and the crisis of legitimacy below, noting here, that what we aim at is to probe the connection between Hattie’s work and the way in which it functions as a counter to the changes in the reasons given for what education is for. Changes that may affect commitment of citizens (Allen & Mendieta, 2019; Habermas, 1976). Some already argue that significant parts of the educational system is fraught with lack of motivation – which for Habermas is a signifier of a loss of legitimation (for example, see Højmark & Jensen, 2005; Katzenelson, 2008). As we will argue below, Hattie’s theory of visible learning offers one of the answers to the challenges posed. Hattie’s approach justifies a school’s functioning as an effective institution founded on scientifically proven methods and promising pupils, teachers, parents, and educational planners a successful outcome.

Historically, Habermas’ (1976) analysis of the legitimacy crisis in late-modern societies sought to reformulate the concept of human alienation not as a direct consequence of exchange relations in the economic sphere that traditional Marxist thinking prescribed, but as related to cultural and normative contradictions that dominate citizens’ interaction with modern institutions (Allen & Mendieta, 2019; Finlayson, 2005).

Also in *Legitimation Crisis* Habermas introduces the twin concepts of *system* and *life-world*. These concepts were to be reinterpreted in Habermas’ later work *A Theory of Communicative Action* (Habermas, 1984; Borman, 2011). Very broadly speaking – the concept of *system* refers to the steering mechanisms of the societal institutions that Habermas was analyzing while the concept of *life-world* is about the validity claims that stem from various sources:

“If we comprehend a social system as a lifeworld, then the steering aspect is screened out. If we understand a society as a system, then the fact that social reality consists in the facticity of recognized, often counterfactual, validity claims is not taken into consideration” (Habermas, 1988, p. 5).

The school is “at the reproductive crossroads” of system and lifeworld Borman (2011, p. 7). It presents a very specific case for understanding the interplay between the societal steering and the participants’ lives more general from which springs the acceptance of its legitimacy.

The Emergence of an Administrative Instrumental Rationality

A significant consequence of the state’s the postwar expansion and active interventions appears in the growth of a special administrative instrumental rationality regulating late modern societies similar to Schön’s (1983, 1987) technological rationality. This kind of rationality is characterized by being instrumental and value neutral. Habermas (1976) argued that this kind of rationality dominating late-modern state institutions, like the educational system, to legitimize the institutions’ interventions in relation to the market and to the citizens must be primarily of a technical, instrumental, and value-neutral nature (Allen & Mendieta, 2019; Finlayson, 2005) seeking to identify the most effective means of solving a given problem. As a consequence, modern state institutions seek to solve the complex economic, political, and cultural problems of society by consulting experts (not through citizens’ active participation) and applying technical scientific logic (Habermas, 1976, p. 34) as a central means of organizing and regulating institutional life. This instrumental and technical rationality works as a central steering media replacing a more historically tradition- and consensus-bound rationality. In traditional modern society, the tradition-bound and consensus-bound rationalities were founded on coherence by linking institutional practice with the tradition- and consensus-bound rationality governing everyday life, thereby legitimizing the educational system (Ziehe, 1989, 2003).

In the traditionally modern school system, the curriculum in the school context is linked to the values governing everyday life and the systems of authority prevailing in society in general. Consequently, traditional schools were governed by a wide range of consensus-based traditions that participants could easily identify with (Ziehe, 1989, 2003). As late-modern societies have developed, the result is an increasing complexity in the ways societal practices are organized and regulated, for example, regarding trade, the legal system, and the educational system. With the development of modern society, a large number of social institutions gradually have moved away from being governed by a consensus-bound rationality based in traditions, and hence they have moved away from a close link to citizens’ everyday lives being governed by an external system’s logic.

The change from state institutions, like the educational system, being governed by a tradition- and consensus-bound rationality in traditional modern society to being governed by an instrumental and value-neutral rationality opens the way for a crisis of legitimation. The crisis is based on the conflict within state institutions’ constant need to serve two masters with antagonistic interests—namely the particular interests of the market and the common interests of the citizens. This legitimacy conflict is addressed in the mature Habermas’ (1984) differentiation between the rationality of the lifeworld and the system world (Allen & Mendieta, 2019; Finlayson, 2005). Habermas’ later work inseparably linked the question of legitimacy to the forms of rationality that dominate the lifeworld of everyday life, ensuring maintenance and the reproduction of meaning in citizens’ lives and an ongoing production of motivation, and the system world governed by money and power (Finlayson, 2005). Habermas’ concepts of life and system worlds incorporate a communicative and hermeneutic action perspective, making linguistic interactional activities the basis for a real

alternative to systems thinking, but the basic thematic focus on legitimacy remains the same (Habermas, 1984, p. 301). The system world is guided not by the consensus-oriented rationality but by an instrumental and strategic logic. The communicative lifeworld is governed by a struggle for consensus; the system world is governed more anonymously by power and money. Power and money act as control media, and it is through these media that the participants' actions in late-modern institutions are regulated. The basic function of the power and money subsystems is to regulate society's material production and to coordinate and integrate actions in the system world so there is system-level integration similar to the role of communication in the lifeworld, serving a function of social integration (Allen & Mendieta, 2019; Finlayson, 2005; Habermas, 1984).

When modern societies become still more complex as a consequence of industrialization and modernization, and citizens become more mobile, the coordination and human actions and activities of communication become a growing challenge. Under these conditions, the market economy (money) and state administration (power) act as relief to the communicative lifeworld, and, according to Habermas (1984), constantly produce and reproduce social and institutional integration. Contrary to classical Marxist thinking, Habermas did not consider instrumental rationality, the market, and state administration problematic as such. The real crises are built into the relationship between the lifeworld and the system world and the growing colonization of the lifeworld. The crisis appears in the tension that arises when an instrumental rationality aimed at stabilizing the market by nurturing specific interests enters a collision course with the consensus-oriented rationality of a life based on common interests (Heath, 2010).

According to Habermas (1984), this means that the administrative systems continually extract the values of the lifeworld to justify strategic interventions aimed at the market, leading to a process of constantly undermining the consensus-oriented common values of the lifeworld. The paradox is that the technical rationality reinforces the effectiveness of institutional systems and at the same time weakens the normative structures that guide the actions of the individuals committed to the same institutions (Ewert, 1991). Habermas claims this legitimacy conflict particularly defines late-modern society, wherein the conflict is particularly linked to cultural practices—in the clash over the rationality of the lifeworld, which is the hub of identity and moral development—and the quest of modern state institutions to optimize the market's stability precisely by rationalizing the citizens' everyday lives (Allen & Mendieta, 2019; Finlayson, 2005). In other words, the emergence of a technical rationality means that a legitimacy deficit arises because the interventions of modern institutions are justified in maintaining, stabilizing, and streamlining the market and will be left with a legitimacy deficit in the citizens' interests. This legitimacy deficit appears in the lack of commitment to modern state institutions.

How Hattie fits in

The past 20 years have seen a number of educational reforms all around the globe, with OECD's PISA initiative as a focal point (Sjøberg, 2018; Sommer & Klitmøller, 2018). The focus has been to make the educational system of participating member states comparable to each other in order to foster change. In a great many places this has meant a slew of reforms – in Denmark culminating in 2014 with a new law on compulsory schooling (Sommer & Klitmøller, 2018).

Returning to Hattie's (2009) visible learning approach, it can be argued that to understand why Hattie's ideas of teaching and learning have become so popular, Habermas' (Allen &

Mendieta, 2019; Finlayson, 2005) analysis of the issue of legitimacy provides a clue. Despite the significant methodological problems Hattie's works are facing, his approach addresses a significant question concerning legitimation. It not only attempts to be a catalogue of a great many evidence-based answers to the question of how teachers should teach. Hattie's main aim is to present a unified theory of teaching that can act as an umbrella for the widely diverse studies that he includes. Why do people need schools? And Hattie's answer is clear: People need schools because they are the most effective institutions for transmitting knowledge from teachers to students, given that the teachers and educational administrators follow Hattie's suggested guidelines. Hattie's division of teaching sessions into easy accessible technical, piecemeal input and output interventions that can be hierarchized, controlled, and measured was just what was needed for optimizing the educational system's efficiency. Hattie's work is a possibility for educational policy makers, school leaders, and teachers to document to the public that it is producing stable learning outcomes and at the same time control the educational apparatus. In other words, it was not the scientific discoveries or the original data produced by Hattie or the evidence-based movement in itself that made a difference but the promises embedded in the theory of technical rationality that could legitimize the educational system. As we have tried to show, nobody seems to be concerned about the scientific quality of the data Hattie based his theory on. It is Hattie's response to the legitimation crisis of the educational system that turned him and his visible learning approach into a cult in the educational system. It promises stable learning outcomes and that the pupils in the Danish educational system will learn as much as possible, to paraphrase the central aims of the considerable reform of the elementary school system implemented in Denmark 5 years ago that was strongly inspired by Hattie's work.

However, as Habermas (1984) outlined, everything comes at a price, and this is also the case with Hattie's (2009) visible learning approach. As we argue in our final remarks, a huge paradox seems to be involved when education becomes legitimized through the theory of technical rationality. On one hand, Hattie's work provides the illusion that evidence-oriented methods maximize learning outcomes, given the strong technical nature of educational practice, and on the other hand, the relationship to pupils' lifeworlds seems to be neglected all together. Overemphasizing the control aspect as the root of the crisis that schools today face, Hattie ignored that the very question of what school is for is not self-evident to its participants.

Marginalizing Questions of Intentions and Meaning

Hence, in line with Habermas' (Allen & Mendieta, 2019; Finlayson, 2005, Habermas, 1984) analysis of legitimacy problems in late modernity, one of the main problems with the technical worldview in *Visible Learning* (Hattie, 2009) is that it contains no concepts of teachers or students' interests, intentionality, or understanding of school or of the role that school life plays in students' lives; no concept of the student or teacher as meaning-seeking or interpretive existed in Hattie's work. The atomization of educational effects (effect sizes) becomes, at the same time, the atomization of the students and teachers into a number of variables. When Hattie talks about students' experiences, it is only only in relation to the way in which students may be susceptible to the teacher's influence. Although the students must be active, they are not initially understood as acting intentionally. They only act mechanically as a consequence of feedback. The students' intentionality and uniqueness are replaced by an understanding of how effective they are at solving problems and acquiring

knowledge. Instead of addressing students as agents and student intentionality, Hattie talks about, for example, self-efficacy, self-handicapping, self-motivation, self-goals, and self-dependence (Hattie, 2012; Hattie & Yates, 2014). All of these different concepts are Hattie's replacement of the students' interpretations of school's relevance and importance and served Hattie's ambition of supporting the students in becoming their own teachers. The starting point is not to understand the teaching situation or the school from the students' perspective but to find aspects of student activities that may be subject to correction so the image of students as problem solvers can be maintained.

Hattie (2009) addresses educational issues from the school's and the teacher's points of view (and from a particular understanding of schools and teachers), reflecting the students as objects under the school's or the teacher's influence rather than addressing school issues from the perspective of how the school plays a role in the students' lives. Furthermore, given Hattie's approach to education, human dialogue seems to be replaced by a strong focus on mutual processes of feedback between the teacher and the student, and there is little focus on giving reasons for the students to learn what they should learn.

Another argument has been that Hattie's (2009) overall aim was to have real effects on how teachers teach (and students participate). His hope, so it would seem, is that his list of effect sizes (and barometers), along with the guidelines of the theory of visible learning, would be enough to secure educational progress. Even when some of the problems Hattie encounters are to be found in his all-inclusive stance on research on student achievement, a whole different set of problems are created when Hattie insists, contrary to the original fields (e.g., feedback) that any concept of this kind can be reduced to single-effect sizes (see, e.g., Nielsen & Klitmøller, 2017).

Technical Rationality as the Frame for Teaching and Learning

With the problematization of student intentionality meaning attending school, we have opened up for further discussion the role technical rationality played in Hattie's work. What we have argued so far is that Hattie's (2009) basic theory was legitimized through its adherence to technical rationality and that this placed severe limitations on his field of research. The constraint of his approach means that only those matters related to a performance increase inspired by technical rationality were included in his theory. This was done at the expense of the empirical material on which he founded his theory (Nielsen & Klitmøller, 2017) and the fact that teachers—and especially pupils—were not considered persons with their own intentionality. Instead of understanding students as persons existing in their own right, Hattie understood them as objects that must either be influenced in some way by the teachers or by the students themselves to increase their performance. And this was despite the fact that Hattie's theory of learning has not been adequately investigated regarding the empirical material he addressed in relation to questions of deep and surface learning. As Hattie acknowledged, the vast majority of studies on which his theory of visible learning was substantiated only measured outcome in relation to surface knowledge, not deep or conceptual learning (Hattie, 2009).

Another way the students' intentionality was left out of Hattie's (2009) work was in the way that learning objectives were not open for discussion. In Hattie's theory of visible learning, the teachers must, with feedback, feed-up and forward, create an environment in which the students, through the reinforcement that lies in the feedback system, direct the students'

activities toward already formulated learning objectives. It is a closed system in which the learning objective sanctifies the means of teaching. Hattie suggested a technological determinant of education, and therein lies the greatest influence of Hattie's work on practical pedagogy. Educational issues are understood within the context of a technological goal–means rationality, and other types of questions other than means–ends questions are considered to be of no relevance. The so-called “empirical turn” in some educational research toward evidence-oriented practice can thus be seen not so much as a scientizing of education but as a metaphor or narrative framing educational practice as industrial production (Biesta, 2015)—part of a far greater movement toward streamlining the use of human resources in educational practice. In many respects, Hattie's theory of learning thus has “the ideological function of making the technical approach to learning self-evident and dominant” (Kvale, 1976, p. 106—our translation).

We believe that the theoretical blind spots in Hattie's (2009) work – the ‘unconscious’ theory in *Visible Learning* – make the paradoxes in the modern educational system even greater, not smaller, and it is necessary to address the theoretical assumptions embedded in educational research and in the theory of technical rationality that Hattie is bringing to the educational system. In our view, the study of how teaching can be improved should begin with research on how schools and teaching are conducted in everyday practice, meaning researching how and why pupils, teachers, and parents participate in educational practice. As in the case of Hattie's research, one should begin not by asking what methods to use to improve modern schooling but rather by inquiring about the meaning of and the reasons for pupils' participating in school practice.

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About the author

Klaus Nielsen is Professor at Department of Psychology, University of Aarhus, Denmark. His research interests are learning in social practice, theoretical psychology and qualitative methods.

ORCID: <https://orcid.org/0000-0001-7287-8400>

Jacob Klitmøller is Associate Professor at the Department of Psychology, University of Aarhus, Denmark. His research is concerned with educational techniques and students' experiences of going to school.

Contact: Correspondence concerning this article should be addressed to Klaus Nielsen, Department of Psychology, Aarhus University. Email: klausn@psy.au.dk

ORCID: <https://orcid.org/0000-0003-1580-2690>