Knigge, Michel

Notions about evidence use in school research – a sketch to start an integration of perspectives

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Michel Knigge

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Zusammenfassung

Dieser Text untersucht die Verwendung von Evidenz in der Schul- und Unterrichtsforschung und strebt an, verschiedene Perspektiven zu integrieren. Dabei wird angenommen, dass viele Unterschiede zwischen Forschungspraktiken eher übersetzungsbedingt als fundamental sind. Empirische Forschung, definiert als systematisches Sammeln von Daten zur Beantwortung offener Forschungsfragen, wird als wertvoll angesehen, unabhängig von der Art der Daten. Die Qualität der Forschung wird anhand gemeinsamer Kriterien wie Originalität, Plausibilität und Nutzen bewertet. Der Text plädiert für eine breitere Anerkennung empirischer Ansätze und eine verbesserte Kommunikation zwischen verschiedenen Forschungstraditionen, um die Schulentwicklung zu unterstützen und Entscheidungen zu informieren.

Abstract

This text examines the use of evidence in school and educational research, aiming to integrate different perspectives. It posits that many differences between research practices are more translational than fundamental. Empirical research, defined as the systematic collection of data to answer open research questions, is valued regardless of the type of data. The quality of research is assessed using common criteria such as originality, plausibility, and usefulness. The text advocates for broader recognition of empirical approaches and improved communication between different research traditions to support school development and inform decision-making.

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Advance Organizer

Zielsetzung und Überblick:

Der Text „Vorstellungen zur Evidenznutzung in der Schul- und Bildungsforschung – Ein Entwurf zur Integration von Perspektiven" von Michel Knigge zielt darauf ab, verschiedene Perspektiven zur Nutzung von Evidenz in der Bildungsforschung zu erkunden und zu integrieren. Er befasst sich mit den wahrgenommenen Unterschieden zwischen Forschungsparadigmen und schlägt vor, dass viele dieser Unterschiede möglicherweise kompatibler oder ergänzender sind, als bisher angenommen. Das Ziel ist es, ein größeres gegenseitiges Verständnis und die Integration unterschiedlicher Forschungspraktiken im Bildungsbereich zu fördern.

Schlüsselthemen und Konzepte:

1. Gemeinsame Ziele in der Forschung:
   a) Alle Forschung zielt darauf ab, das Verständnis zu erweitern, sei es durch theoretische oder empirische Methoden.
   a) Wichtige Merkmale guter Forschung sind Originalität, Plausibilität, Zuverlässigkeit und Nützlichkeit, wie interdisziplinäre Studien zeigen.
2. Empirische Forschung in der Bildung:
   a) Empirische Forschung umfasst allgemein jede systematische Datenerhebung zur Beantwortung offener Forschungsfragen, unter Verwendung von Methoden wie Beobachtungen, Tests, Interviews und Umfragen.
   b) Die Qualität der Daten und ihre Fähigkeit, zur Beantwortung von Forschungsfragen beizutragen, ist entscheidend, unabhängig von der Art der Daten.
3. Evidenzbasierte Forschung:
   a) Evidenzbasierte Forschung beinhaltet die systematische Sammlung empirischer Daten zur Beantwortung von Forschungsfragen.
   b) Es besteht die Notwendigkeit, das Verständnis dessen, was als Evidenz gilt, zu erweitern und anzuerkennen, dass unterschiedliche Arten von Forschung zu einem evidenzbasierten Ansatz beitragen können.
4. Taxonomien und Qualitätsstufen von Evidenz:
   a) Verschiedene Taxonomien klassifizieren Evidenz, oft danach, wie gut sich die Ergebnisse verallgemeinern lassen. Systematische Übersichtsarbeiten werden beispielsweise aufgrund ihrer Generalisierbarkeit hoch geschätzt.
   b) Die Bedeutung theoretischer Überlegungen und Fallstudien wird ebenfalls anerkannt, obwohl sie eine geringere Generalisierbarkeit aufweisen.
5. Integration und Kommunikation über Paradigmen hinweg:
   a) Der Text plädiert dafür, Verbindungen und Gemeinsamkeiten zwischen verschiedenen Forschungsparadigmen zu erkennen.

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b) Eine verbesserte Kommunikation und ein gegenseitiges Verständnis zwischen Forschern aus verschiedenen Paradigmen können die Integration von Perspektiven und Praktiken fördern.

6. Implikationen für Schulentwicklung und Unterricht:
   a) Evidenzbasierte Praxis sollte nicht als standardisiert, sondern als an spezifische Kontexte und Bedürfnisse anpassbar betrachtet werden.
   b) Der Einsatz von Evidenz bei Entscheidungsprozessen unterstützt demokratische Prinzipien und hilft, den Bedürfnissen vielfältiger Schülergruppen gerecht zu werden.

Verbindung zu Vorwissen und Kontext

Die Diskussion baut auf bestehendem Wissen über Forschungsmethoden auf und betont die Bedeutung empirischer Daten in der Bildungsforschung. Pädagogen und Forscher, die mit qualitativen und quantitativen Methoden vertraut sind, können von der im Text vorgeschlagenen integrierten Perspektive profitieren. Durch die Anerkennung des Werts unterschiedlicher Forschungspraktiken und die Verbesserung der Kommunikation über Paradigmen hinweg kann die Bildungsforschungsgemeinschaft die Qualität und Anwendbarkeit evidenzbasierter Praktiken verbessern. Dieser Ansatz steht im Einklang mit den zeitgenössischen Zielen, inklusive und gerechte Bildungsumgebungen zu fördern.

Common Goals of Research

This brief sketch is written to serve as a starting-point of a joint endeavour to integrate perspectives on evidence use in school research. This follows the hope that at least some sometimes claimed differences might turn out to be more connectable, complementary, compatible, or even similar between research practices as assumed so far.

With no doubt, there are different research practices enacted (cf. Frohn et al., 2020). Taxonomically, it seems not perfectly clear how different approaches relate to each other. Of course, taxonomies exist (cf. Döring & Bortz, 2016; Flick, 2022). But as there are different theories applied as foundations for research practices this is also the case for taxonomies. Accordingly, as different theories and terminologies are used as foundations for research practice this might lead to perceptions of conceptual differences. This sketch is written with the assumption that there are many connections or even overlaps between so called paradigms and that the possible perception of oppositeness could be rather of translational nature. Hopefully, this could lead to more mutual reception and appreciation of research results of so called different paradigms and inform more complementary

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research practices. So it might be worth to put some effort into terminological trans-disciplinary clarification.
This sketch follows the assumption that all kinds of research teleologically aim to understand something better. They either do this on a theoretical basis, on an empirical basis, or a combination of both. This claim is supported by Langfeldt et al.'s (2020) interdisciplinary and empirical investigation when they identify "three attributes (often) considered for 'good research': It's originality/novelty, plausibility/reliability, and value or usefulness." The authors state that these criteria are common across different contexts as research fields and research policy spaces. Beside others Merton (1942/1973, 1957/1973, quoted after Langfeldt et al., 2020) early formulated "social imperatives (as quality norms) of science as a social system: communism (openness), universalism (impersonal criteria and reproducibility of results), disinterestedness (impartiality and imperviousness to interests exogenous to science) and organised scepticism (scrutiny and thoroughness). Merton also argued originality is one of the institutional norms of science." If we follow this, we can see that there are common criteria to evaluate the quality of research accepted and applied across so called research paradigms. Nevertheless, their application might be contextualized and thus differ on first glance. This might impede communication or even understanding and learning (cf. McBrady, 2022). Accordingly, this topic needs more attention to come to more common grounds in communication.

Empirical Research in Education

If we now look closer to empirical (school) research, the adjective "empirical" could be conceptualized rather broadly as a starting point: any research that intentionally and systematically gathers data with the objective to address an open research question can be considered as empirical research, no matter if this empirical data is gained through standardized or free observations, the results of explicit or implicit tests, archived documents, different kinds of interviews, differently standardized surveys, within randomized control trials or ad hoc samples or otherwise. The appropriateness of the data at use could be judged based on the mentioned common criteria with regard to it's potential to contribute to the answer of the open research question at hand. There are no generally good or bad respective better or worse data types. Of course, data quality needs to be always assured, no matter what kind of data one collects.
The collection and analyses of different kind of empirical data is very common in actual school research. This could be interpreted in the sense that there is a rather broad common understanding that to process empirical information has advantages in comparison to draw only on theory and personal impressions for the derivation of conclusions, actions and it's evaluations. Action can happen on

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different levels in the educational system, e.g. political levels, administrations, schools, teachers, students, parents, evaluation can mean to formatively identify options for possible improvements in ongoing processes, e.g. what to do next, how to form instructional designs, or to make summative judgements, e.g. what school track should be attended. It is important to note that the decisions at stake are inevitable. Accordingly, it is not the question, if stakeholder make evaluations and decisions, it is only the question how they do it. To relinquish from any kind of teleological empirical approach to gain information means to rely on implicit or explicit assumptions within ones owns system, without any chance of quality assurance (cf. Döring & Bortz, 2016; Franco, 2019). Van Ackeren and colleagues (2011) point out from an interdisciplinary perspective that the translation of empirical research into school and instructional development is not straight forward. Nevertheless, what could be an alternative?

Evidence-Based Research

In spite of the communalities of empirically driven school research there seem to be differences in the interpretations how and when such research is good research. In line with this, some researchers are rather reluctant if it comes to attitudes regarding the claim of the use of evidence in school research. Accordingly, "evidence-based research" is often declined. I want to suggest that all researchers who systematically engage in gathering empirical data to answer derived research questions could claim to work evidence based. In the above stated understanding any empirical research is some kind of evidence and could be considered as a contribution to an evidence-based research-approach to a question at stake. Thus, I hope that this sketch can contribute to a stronger attention of researchers operating in all so called paradigms on communalities and connections to the research of other so called paradigms.

Taxonomies and Quality Levels of Evidence

Of course, within this broad conceptualisation not all kinds of evidence are the same. There are different taxonomies that try to identify classes of evidence. Some of these classifications also define quality levels. E.g., Howick et al. (2011) from the Oxford Centre of Evidence Based Medicine Working Group define five level that are ranked by their potential to generalize the findings. Accordingly, the highest level 1 is rated for systematic reviews of many high-quality studies, what refers to randomized and non-randomized control studies. This could be interpreted to be an association with specific paradigms. But one also can recognize that the associated goal – to extent generalizability – goes pretty much along with the above mentioned interdisciplinary criteria. In line with this, the taxonomy also

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values sound theoretical reasoning and case research as evidence-based practice, but on lower levels because of their less clear generalizability. Also approaches like inclusive inquiry (Kyriaki & Ainscow, 2020) are evidence-based research by this classification. Such a taxonomy can inspire extensions of many research processes in several directions (cf. Knigge, 2020). Please note that this classification presented here is not the only one existing and not the last one possible (e.g. the by Kirkpatrick & Kirkpatrick, 2006 to evaluate training programs). It is important to continue scientific discussions about evidence-based research. But it hopefully becomes clear that this term has a much broader meaning and includes much more kinds of research as sometimes assumed.

Nevertheless, also sound theoretical reasoning and case studies are considered as evidence. As Albert Einstein said: "It is the theory that decides what can be observed" (Calaprice, 2011). Theories need to be developed and they need to be tested. This might lead to the important aspect of induction and deduction as two complementary research principles that can be extended by the principle of abduction (Döring & Bortz, 2016). It is of course useful to inductively investigate few cases in high detail. This can be even used to derive theory, e.g. in the grounded theory approach (cf. Akkaya, 2023). Once there are made many theoretical derivations it also useful to test these assumptions deductively. This can go along the principles of Karl Popper's critical rationalism (cf. Franco, 2019). Simplified one basic principle of this widely accepted epistemic paradigm is that it is not possible to discover the truth (as the positivistic paradigm suggested). But we can develop theories and models that are robust in helping us to understand phenomena and their connections better. If we derive sound assumptions from theory and try to falsify the resulting hypotheses, we can prove the theory to be robust, if falsification fails. Rather clear that this is only the case if the applied research design was appropriate and a falsification would have been possible in case assumptions are not correct. Again, a quote of Einstein from a letter to Hans Muehsam in 1951 that is quite clearly in line with this paradigm: "One thing I have learned in a long life: that all our science, measured against reality, is primitive and childlike – and yet it is the most precious thing we have" (Calaprice, 2011).

Very important, evidence-based research does not mean that evidence based practice needs to be standardized. The use of evidence is an important and indispensable device to develop schools and teaching. It gives orientation what works better and what works worse and should and does consider single cases and contextual variables as moderators. What constructs or variables are investigated is open. So, striving for an evidence-based practice does only mean that evidence is reached out for and received. But still, stakeholders have to make professional and adaptive decisions that apply for the specific situations at hand. Nevertheless, the claim to produce and apply evidence to make important decisions supports democratic principles. It gives e.g. minorities possible argumentations and reduc-

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es the influence of the opinions of powerful stakeholders. An important example of this is the evidence-based research on climate change and its successful use e.g. by Fridays for Future. Inclusion is also a topic with great tension and strong opinions (cf. Kauffmann et al., 2018; Blömer-Hausmanns & Schnell, 2020) that needs empirical orientation.

Integration and Communication Across Paradigms

So, what can be concluded? Evidence based research is widely applied, even by researchers who would not apply this term or even refuse it. Accordingly, one major claim of this sketch is to support the notion that evidence-based research and practice are useful, to promote a wider understanding of this term, and to reduce misunderstandings what it means. It is hoped for that it might be a backing of communication between so called research paradigms that is looking for connections, translations, and chances to integrate different perspectives. In such a process it can and should be discussed if and how more comprehensive taxonomies to classify e.g. different kinds of evidence-based research could look like. Hopefully, it eases a common avowal to empirical research with the aim to support and develop schools to help them to become better places for all acting within and around them.

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Author

Knigge, Michel, University of Potsdam, Faculty of human sciences

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