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BRIDGING THE GAP BETWEEN THEORY AND PRACTICE WITH DESIGN-BASED ACTION RESEARCH

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Abstract

This article proposes design-based action research as an addendum to large-scale educational research. Placing design-based research together with teachers' action research into one single method, this study takes a pragmatic approach in accordance with Dewey's (1938) philosophy on democratic change in education. Its participatory methodological framework includes stakeholders directly into the discourse about educational improvements and reforms. To make my claims substantial, I will elucidate why teachers' practical knowledge is of paramount importance for bridging the well-known gap between theory and practice. I will exemplify the constructed method with a research project exploring the potential of The Simpsons for bilingual Politics & Economics classes. I will argue that the overall approach I offer makes practical knowledge become scientific. Additionally, considerations for including design-based action research as a methodological pathway into teacher education are mentioned.

Keywords

design-based research, action research, mētis, pragmatism, teacher education, educational reforms

Introduction

Latest with the launch of the triennial Programme for International Student Assessment (PISA) in 2000, large-scale empirical educational research has been dominating the discourse about educational reform. The use of standardized research tools generating a multitude of data sets for complex statistical analysis has triggered sweeping responses by policy makers. In contrast, methods that enable educators to directly intervene into educational contexts and thus consolidate theory with practice mostly remain a flash in the pan within this discourse.

What follows may at times be a bit personal, but it is nevertheless congruent with the overall approach of this article. It centers on the topic of how the voice and knowledge of the main stakeholders—i.e., teachers and students—can be embedded from inside the profession into scientific educational discourse. I firmly state that this article must have a personal dimension because I as its author occupy a dual role as a teacher at a secondary school and a research associate at Goethe University Frankfurt. I am part of the PolECule[1] project team that endeavors to develop theories of teaching and learning in bilingual Politics & Economics classes engendering from the practice of teaching. Indeed, it is the utmost objective of PolECule to consolidate theory and practice and fill that well-known gap. Especially the practical knowledge of educators teaching bilingual classes enjoys paramount significance as a gear of innovation within the ideological foundation of the project. Therefore, a proximity to the methods of anthropology, in the sense of field interventions in an overall natural environment, can easily be constructed.

When teachers are asked for advice to solve practical problems, statements such as the following are often echoed: "*This method has always worked in my classes*," "*My impression is…*," "*In my experience….*" To twist this argument a little, students in education and teaching at university as well as teacher trainees at school mostly ask me questions that can be put in bits and pieces into the following nutshell: "*Can you give us some practical tips and advice on what to do in*

[1] PolECule is an acronym for politics, economics, and culture. The project was started in 2015 with the intention of developing educational standards for bilingual classes in this subject along with practical teaching and learning methods. The final version of a conceptual framework was completed in October 2017. The remainder of the project revolves around developing materials and methods for the practice of teaching. More at http://www.polecule.com.

such a situation that is not too theoretical?" Students and teacher trainees usually then show due attentiveness and eagerly take notes and share their own humble experiences while displaying emotions and passion.

The outcome of similar discussions mostly ends in a cacophony of voices. On the one hand, this illustrates a large pool of impressive knowledge – often very personal but professional narratives that matter! On the other hand, this conglomeration of knowledge may—or may not—help in practice, but it hardly adds anything to theory due to a lack of a scientific essence. Experience alone does not necessarily suffice. Truly it can overwhelm any attempt at professionalism. Yet it would be a real pity and inappropriate to indulge in ignorance and reluctance because the stories teachers tell constitute notable vernacular narratives. In this vein, the following very emotional passage from five teachers highlights this train of thought:

> And teachers? We are characterised as unwitting participants in the system, lazy, not so bright, unwilling to accept responsibility for our failures, or sometimes, in ways taken up by Hollywood screenwriters, isolated and heroic. The current and most frequently suggested fix is to use tests and standards to make practitioners more accountable and offer 'research-based' guidance to those willing to improve. (Schaenen, Kohnen, Flinn, Saul, & Zeni, 2012, p. 68)

These five teachers articulate a valid concern. They want their case to be taken seriously within the educational discourse and their knowledge to contribute to theory in education. For this reason, I will proceed in the following manner. To begin, I will discuss the effect large-scale quantitative empirical research has had on education policy making and reforms, taking the so-called PISA effect as a starting point. My criticism is not directed towards any such initiative. Rather, building on Schön's (1983) famous distinction between technical rationality and reflection-in-action, I want to unfold more pragmatic research as a useful complement within the educational discourse and emphasize a plea for pluralism of methods in educational science. From Finnish success at PISA, we learn, *inter alia*, that the role of teachers in learning is seminal. I will therefore construct an argument referring to the modernist critique of science in the sense that practical knowledge, although ostensibly unscientific, matters. The next step consists of examining whether methodic pragmatism as a bottom-up methodology can be a harbinger of a science of practical knowledge. I will outline my train of thought in presenting my research project for the thesis requirements of my own teacher training a few years ago.

The main part of this article is thus theoretical in nature. In a Weberian sense, it is an appeal to consider the dual roles of teachers as researchers because good scientists are good teachers and *vice versa* (Weber, 1919).

Who dominates the educational discourse? PISA and its Finnish paradox

In an open letter to Dr. Andreas Schleicher, the director at the Organization for Economic Co-operation and Development (OECD) responsible for PISA, more than 80 academics and educational experts from around the world expressed their firm opposition to PISA. One of the main criticisms was the exclusion of the main stakeholders, including students and educators. The authors of the letter further excoriated the method of collecting and analyzing data because it merely centered around economic aspects in public education (Meyer & Zahedi, 2014). PISA's logic consists of assessments in mathematics, science, and reading, with multiple data sets to rank countries' educational institutions globally. As the open letter pointed out, the steering committee comprises mainly external "psychometricians, statisticians, and economists" (p. 873) who design the tests, evaluate the scores, and put forward policy recommendations.

In some countries, PISA results have been met with cheerful joy. For instance, they constituted a positive surprise for Finland, whereas the United Kingdom showed pride in self-affirmation. In contrast, many other countries suffered from a PISA shock – in some cases such as Germany a quite strong one indeed (Grek, 2009). The bottom line is that PISA has led to ongoing, at times acrimonious, discussions and widespread consequences in education in many countries and has crucially changed education policies around the globe. Recognizing the paradigm shift towards a strictly numeric and "evidence-based policy agenda," Sahlberg (2006; 2011, p. 176) spoke of a new "Global Education Reform Movement" (GERM). He first acknowledged that GERM encompasses many progressive aspects. It is a positive attempt to react to the demands and challenges of the new global knowledge economy in providing students with key competences, such as "problem solving, emotional and multiple intelligences, and interpersonal skills rather than the memorization of facts or the mastery of irrelevant skills" (Sahlberg, 2011, p. 176). Furthermore, he endorsed the fact that in light of the United Nations Millennium Development Goals core emphasis is being placed on basic literacy and numeracy skills for the many people who had thus far been deprived of education.

However, he directed sharp criticism toward very crucial implications of PISA. He concluded that the backwash effect from merely focusing on "successful performance in standardized tests" (Sahlberg, 2006, p. 260) jeopardizes "creativity, flexibility and risk-taking" (2006, p. 275; 2011, p. 178), the driving forces for innovation in classroom teaching. The role

of the teacher disappears in the quest to comply with GERM's prescriptions for performing well in comparative assessments. In sum, this erosion of teachers' creative leeway also stands in stark contrast with the demand for democratic participation by the authors of the open letter. Moreover, GERM has never defined a road map for best classroom practices for improving learning environments to achieve student success, not to mention dealing with the resulting insecurity, uncertainty, and pressure on educators.

Ironically, Finland, which emerged from PISA as the main educational showcase, has a culture of educational practice in diametrical opposition to the more universal and centrally planned GERM policies from external experts. The conclusions to be drawn from the Finnish paradox are that it is necessary to support a vernacularization of the global educational discourse, build on local solutions, and accept the pivotal importance of teachers in cooperatively designing and managing learning processes in the education system – see also Sellar & Lingard (2013), who trace the growing impact of the OECD on education in their review essay. Of course, this is by no means meant to be a call to jettison the methodology and findings of PISA *per se*. Rather, in defense of methodological pluralism, conclusions drawn from such large-scale studies can be supplemented by exploring certain issues and deficits from inside to ultimately establish a direct link to practice and natural environments.

As a consequence, and learning from Finland's longstanding "culture of diversity, trust, and respect" (Sahlberg, 2011, p. 182) in education, we should ask the question of how teachers as internal experts, knowing the dynamic field from their daily routines, can acquire practical knowledge in order to contribute to the discourse on educational reform from inside. This is something Goodwin (1994) would call "professional vision." The following sections will therefore explore the two fundamental sides of the coin. Why does practical knowledge matter so much? Can more exploratory and pragmatic methods be instrumental in providing teachers with the repertoire to sustainably develop practical knowledge? As a complement, can such methods bolster theory development for science, and thus for the discourse on educational reform, complementary to large-scale research? Let us first ask why a focus on the practical knowledge of teachers, comprising numerous personal narratives, is at all material to educational improvements and reforms, and why it needs to be at the same level as all findings and conclusions from large-scale studies.

Why practical knowledge matters: about mētis and educational innovation

In his book *Seeing like a State*, James C. Scott (1998) asked why so many policy programs by states, based on the most sophisticated and up-to-date scientific methods, have failed to improve human living conditions. To find possible explanations for the missing link between theory and practice, he turned to the ancient Greek concept of *mētis*, which he compared with a "rule of thumb" (Scott, 1998, p. 312). Mētis is acquired by experience, intuition, and stochastic reasoning with its basis in local vernacularism. It constitutes practical knowledge that addresses "the problem at hand." He continued by clarifying:

> Metis is most applicable to broadly similar but never precisely identical situations requiring a quick and practiced adaptation that becomes almost second nature to the practitioner. […] Mētis resists simplification into deductive principles which can successfully be transmitted through book learning, because the environments in which it is exercised are so complex and nonrepeatable that formal procedures of rational decision making are impossible to apply. In a sense, mētis lies in that large space between the realm of genius, to which no formula can apply, and the realm of codified knowledge, which can be learned by rote. (Scott, 1998, p. 316)

A comparison with farmers having defined the arrival of the Ice Saints over decades, and the adaption of farming and harvesting, may illustrate the general train of thought. In addition to Scott's use of mētis to provide conceptual policy approaches in the field of international development, a renaissance of mētis can be witnessed especially in the applied sciences. More specifically, it has been rejuvenated for improvements in, *inter alia,* management learning (e.g., Mackay, Zundel, & Alkirwi, 2014) and organizational theory (e.g., Letiche & Statler, 2005). These two articles provide a detailed and compelling genealogy of mētis from the Greek mythology and its adoption into modern thought by Detienne and Vernant (1978). Furthermore, we can learn more about the benefit of mētis for research and development in the sciences due to its potential to solve complex and situational problems and thus stimulate innovation while steadily maintaining a close proximity to the field. Letiche and Statler (2005, p. 4) went so far as to contend that mētis "cannot be ignored as a source of creativity or innovation." They emphasized its returns for solving problems in special and unforeseeable circumstances where the virtues of science often remain limited.

Against the backdrop of this and from Clifford Geertz' famous account (2000) about the virtue of local knowledge—or common sense—I want to borrow the concept of mētis to highlight the paramountcy of teachers' practical knowledge. Possessing and gradually developing mētis is highly relevant for a strong nexus between theory and practice in educational research and teaching and as an indispensable source of creativity and innovation, as Finland and its PISA success has illustrated. Teaching or studying mētis from textbooks, as Scott points out, is close to impossible. Thus, efforts are necessary to promoting the development of mētis already among teacher trainees through facilitating methods to closely observe the natural learning environment and engage in experimental activity. Trial-and-error logic occupies the foreground because any subjective theory develops by doing it yourself, reflection, and adaption – on a small scale.

There is no universal formula for mētis as such, as it is not static but fluid and defined in local varieties. However, teacher education can promote specific methodological competences—including something like a kit with a broad repertoire of tools—as a road map for developing mētis to remedy context-specific challenges and also contribute to developing theory. In other words, I see collateral expertise in teaching and scientific research as essential for educational change. In a broader sense, we can relate this plea to Dewey's theory of knowledge, and in particular to his book *Experience and Education* (Dewey, 1938). He was concerned about developing a theory of positive educational experience among teachers by which, per Scott, mētis develops. To engender such an educational experience, Dewey called for educators to inquire directly into natural environments. Interaction and an "experimental continuum" are, he believed, instrumental for the construction of knowledge. Additionally, such a process-based approach makes the discourse on educational reform and changes take place more among equals, empowering stakeholders to contribute to any innovations together with the GERM planners.

Dewey is often identified as one of the precursors of action research by teachers. His theory includes stakeholders into the overall discourse and is thus tantamount to an attempt to democratize and reform institutional arrangements pragmatically. The following section will deal with the question of how far these preliminary theoretical thoughts can work in practice. I will discuss methods of pragmatic research against the background of making it into a science in order to "evoke mētis … in a cultural milieu that is replete with facile invocations of creativity, change and innovation" (Letiche & Statler, 2005, p. 13). At this point, let me clarify that references to mētis in the remainder of this article serve as a positive synonym for practical knowledge.

Anything goes? Almost! A science of mētis with design-based action research

In comparison with the laborious PISA and large-scale studies involving a large body of researchers, at first glance any idea to include individual teachers with their mētis into the educational discourse appears to have minimal impact. I contend, however, that the relationship between positivist approaches and more pragmatic ones does not at all constitute a zero-sum game. The question is how mētis can be made scientific and become an instrumental data set for educational discourse and professional teacher training.

At first glance, including teachers' mētis may sound like methodological anarchy. However, let me twist this argument in accordance with the ideas of Paul Feyerabend (1993). I argue that almost anything goes! Borrowing from Scott, the sum of all mētis is a unique body of knowledge instrumental for solutions in specific learning contexts. The business of teachers includes conducting numerous interactions and decisions during the quotidian vicissitude of classroom dynamics that are always unique and special. Juxtaposing Scott and Feyerabend, we have a high number of ad-hoc hypotheses with a need for an immediate however without much time for deliberation. Such ad-hoc hypotheses as well as the ensuing actions lay the groundwork for the genesis of mētis at a later stage. That means, "almost anything goes" if "professional anarchists" (Feyerabend, 1993, p. 12) systematically contribute to a science of mētis.

My use of Feyerabend's concept of professional anarchists is intended to establish a methodological guideline for teacher education and training to consolidate teachers' daily experiences with the need to contribute to innovative theories in the field of educational research. However, this approach should by no means restrict teachers in their exploratory and experimental liberty, as is implied by the word anarchist. Teachers' action research provides an apt starting point for engendering mētis. The analogy Scott constructs with reference to Charles Lindblom's famous expression of the "science of muddling through," or as I would put it "the art of teaching," mirrors this general idea. A central idea for action research is that the stimulus for taking the initiative originates with the teachers themselves with their incentive and interest to acquire further insights from a question or issue deserving deeper and more systematic scrutiny (Baumfield, Hall, & Wall, 2012).

There are many models of action research in various textbooks that are differentiated to various degrees. Their logic mainly consists of the following circular pathway: (1) identifying a problem and planning the intervention, (2) acting, (3) observing and collecting data, and (4) analyzing and reflecting.

The theoretical foundations can be explicitly traced back to Kurt Lewin, who set milestones for this method around the time of World War II (Lewin, 1946). The closeness of Lewin to Dewey's pragmatism and his endeavor to democratically reform educational institutions from bottom-up is quite clear (Stark, 2014; Thiollent, 2011). Pragmatism is, of course, a stark contrast to large-scale empirical research with its roots in the logic of scientific positivism and thus mostly relies on assessment in educational contexts.

During action research, the teacher isochronally occupies the dual role of a practical researcher. The inclusion of insiders, teachers, and students throughout the research process lies at the heart of the idea, as action research relies on their local knowledge and feedback during the teaching and research process. Adelman (1993, p. 8) emphasized that action research since Lewin "gives credence to the development of powers of reflective thought, discussion, decision and action by ordinary people." Thus, its proximity to the natural learning environment with the full involvement of all stakeholders constitutes its biggest virtue.

The literature on action research does not see a team structure among researchers as necessarily given. This means that action research can also be conducted proactively by one single researcher. However, some literature on action research strongly recommends a team of researchers to engender multiperspectivity (Fichten, 2005). Thus, a team of researchers and educators as an "ethical stance" provides the basis for a fruitful and "professional dialogue" (Baumfield et al., 2012, p. 155), as opposed to lone fighters who are hardly able to systematically develop and especially theorize mētis outside a team structure.[2] Another benefit is that a team structure obviates the danger to bias the data collected and thus mitigates threats to scientific validity (Schaenen et al., 2012, p. 79). Argyris et al. (1985) termed this more experimental and inductive approach "action science" (cf. Adelman, 1993, p. 12). To conclude in accordance with Thiollent (2011), action research can provide a powerful alternative for scientific inquiry.

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[2] There are many practical handbooks on how to conduct action research in practice. It is important, however, to keep in mind that the use of such assistance as a result of individual motivation is rather unlikely because the matter of action research as such remains very complex and time-demanding against the background of teachers' daily work. Moreover, the question of the incentives for engaging in such projects at all remains unanswered from many teachers' points of view.

Nevertheless, action research is often still attacked for being not scientific because theory development must yield to practical application. This also explains why action research is clearly underrepresented in the literature on the educational sciences. As opposed to more mainstream methods, action research is mostly used in single cases without the findings being made available to the broader practitioner and scientific communities respectively. It is primarily employed to resolve very specific and contextual problems in local and very unique situations and settings. That means that the mētis acquired during the process could remain concealed and faint. Although we can infer from Scott's approach that the sum of all single cases produces a powerful pool of mētis, i.e. "knowledge that is *useful*[3] outside the scientific community" (Pålshaugen, 2009, p. 232), we need to find pathways to generate theories from this very useful knowledge. Or to put it better, the involvement of teacher training in similar activities for replication purposes deserves serious consideration. Team structures comprising experts from various areas are doubtless a good starting point. Making mētis from single-case interventions available to the scientific community is therefore realistic, as Pålshaugen (2009) summarized. But how can we facilitate such a science of mētis?

A very similar, yet in some significant ways also very different, approach is design-based research, which also works within a pragmatic outline. This comparatively new methodological framework found its beginnings in the seminal papers of Brown (1992) and Collins (1992). Design-based research is used in natural learning environments with the ultimate goal of testing and developing grander learning theories. A close partnership between teachers and scientific researchers during the research process constitutes the main foundation of the methodology. Brown (1992) noted that design-based research produces reliable and replicable theories that work in practice:

> We must operate always under the constraint that an effective intervention should be able to migrate from our experimental classroom to average classrooms operated by and for average students and teachers, supported by realistic technological and personal support. (Brown, 1992, p. 143)

As the second popular representative of design-based research from its beginnings, Collins (1992) emphasized that its experimental character offers a great deal of distance from the grand theories of education. He nevertheless called it a science of education, pointing out that it is not a classical analytical science but a design science.

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[3] Emphasis in the original.

During the past 25 years, interest in and application of design-based research has been constantly growing (see Anderson & Shattuck, 2012, for an empirical analysis of the rise in frequency). Over this time span, it has been under close scrutiny regarding its value for scientific research in education and beyond. A decade after its advent, the Design-Based Research Collective (2003) concluded that design-based research had tremendously helped in the creation and dissemination of knowledge. The authors continued by stating that successful interventions by teachers were based on theoretically designed artifacts. It is no wonder why research on local interventions can contribute to the development of more general theory, as members of the research initiative clarified in another seminal paper: "Design experiments are pragmatic as well as theoretical in orientation in that the study of function—both of the design and of the resulting ecology of leaning—is at the heart of the methodology" (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003, p. 9). Similarly, Barab and Squire (2004, p. 5) importantly noted that "a critical component of design-based research is that the design is conceived not just to meet local needs, but to advance a theoretical agenda, to uncover, explore, and confirm theoretical relationships."

An example of a very comprehensive design exercise from New Zealand should illustrate the approach. Timperley, Wilson, Barrar, and Fung (2007) argued from their research on teachers' professional learning that skills development alone does not suffice without any reference to theory. The overarching *Best Evidence Synthesis Programme*, originating from a policy initiative, serves as a powerful example of the link between academic educational research and its implementation in practice. Through a wide array of case studies, the process and results, along with implications for teaching, were presented. The authors evaluated the effect on teachers' professional learning as overtly positive (Timperley et al., 2007). Taking up the issue of sustainability and theory generation, they concluded that the approach "proved useful but cannot be considered adequate as a theory of professional learning. More work is needed" (Timperley et al., 2007, p. 228).

Despite the drive for innovation through the increase in design-based research, several shortcomings, as noted by Timperley et al. (2007) themselves, provide a *caveat* for scientific endeavors, possibly due to a missing link with mētis. At this point, we need to ask ourselves whether a more horizontal integration of teachers into the research and educational discourse could work. However, the largest problems includes the issue of researcher bias in design-based research. This is a common problem with methods directly involving the researcher in the field, as is known from traditional anthropological field research (Anderson & Shattuck, 2012). Bias in data selection, which means selecting cases that support claims and elucidate success stories at the cost of the average case, can lead to fallacies with more

general theories during inference (Brown, 1992). This again suggests that design-based research provides more intellectual distance, albeit at the cost of the science of mētis being targeted. In order to cease going round in circles and yet arriving at a dead end, the sincere question I want to ask at this point may sound very trivial but at the same time it is fundamental: what value can more pragmatic methods such as design-based research and action research add to science and practice? Can researchers compensate for their shortcomings?

As often echoed, the unconditional application of grand theories in complex classroom environments does not necessarily lead to the desired success. We need reliable tools to verify whether mētis really works. Now, we could learn that design-based research is theory-driven and has the main feature of generating new theories from interventions into practice. However, the team's researchers do, in the end, act from outside. Changing perspectives again, action research emanates from challenges teachers face in practice with the ultimate goal of engendering pragmatic solutions from inside. It provides only a modicum of potential for a science of mētis because its link to science as such is now too little institutionalized and extracted. Action research, as many see it, fails to meet the criteria to be a scientific method because it is too embedded in practice (Richards, 2003, p. 26). Why not establish a powerful approach combining both action and design-based research into a pragmatic research method that aims theory development and mitigates the mentioned deficits?

The general idea is, of course, not a new one. In the area of information science and technology, Cole, Purao, Rossi, and Sein (2005) called for action design research. They pointed out the commonalities and basically suggested using parallel processes from both methodologies to synthesize two-way interchanges of information. Some of the aforementioned authors suggested in a subsequent article that action design research constitutes a new form of design-based research (Sein, Henfridsson, Purao, Rossi, & Lindgren, 2011). This means that their methodology is strongly biased towards design-based research.

I wish nevertheless to turn their proposition around. Earlier I argued that mētis enjoys a central role in developing practical solutions in teaching and made a plea for a science of mētis. Any combined methodology must be accordingly biased and focus on mētis as the matrix. For this reason, I wish to argue for design-based action research instead, with a light focus on action research. The features of design-based research have the power to transmute it into a strong science. I suggest that dovetailing the two methods gives teachers theoretical assistance in intervening with mētis into their real-world environments. The developed solutions can in turn be compounded into "something grander," meaning "contextual theories of

teaching and learning with a medium degree of generality" (see also Fischer, Waibel, & Wecker, 2005; Design-Based Research Collective, 2003).

We can find this overall idea mirrored in Cochran-Smith and Lytle (1999), who distinguished during teacher learning in communities among (1) knowledge-for-practice, (2) knowledge-in-practice, and (3) knowledge-of-practice. While the first can be equated with the body of science taught in university for direct application in teaching (formal knowledge, as in PISA), and the second originates from "wisdom in practice" (Cochran-Smith & Lytle, 1999, p. 265; practical knowledge, which means mētis). The last form of knowledge, knowledge-of-practice, as the authors emphasized, combines the first two. As the authors argued, a blurring distinction eliminates any hierarchy and "serve[s] to reify divisions that keep teachers 'in their place' – the separation of practitioners from researchers, doers from thinkers, actors from analysts, and actions from ideas" (Cochran-Smith & Lytle, 1999, p. 289). The core of their approach comprises both process-based action and design fashion amid a close collaborative structure within the school and with academic institutions for publicizing local knowledge with the objective of generating theory. Inquiry by teachers in a team structure consisting of direct stakeholders and outside experts, meaning "discourse-particular ways of describing, discussing, and debating teaching" (Cochran-Smith & Lytle, 1999, p. 294), in the end constitutes agency within a democratic and participatory setting. So the authors concluded:

> [R]ich descriptive talk and writing help make visible and accessible the day-to-day events, norms, and practices of teaching and learning and the ways different teachers, students, administrators, and families understand them. In this way, participants conjointly uncover relationships between concrete cases and more general issues and constructs. (Cochran-Smith & Lytle, 1999, pp. 294–295)

The commonalities between design-based action research and this account are obvious, as I suggested above. In order to exemplify how this approach can work in practice, I will now present my research project for my thesis as a teacher trainee.

Looking back to the future: how theory and practice can benefit from design-based action research

In the introduction, I clarified my dual role as a teacher and researcher, occupying a space between the two professions with my endeavor to contribute to filling the gap between theory and practice. Then, I showed how a science of mētis can become a powerful tool for discourse about educational

improvement and reform. I strongly defended design-based action research as an apt method, as I believe it combines practice and theory. Now I will briefly exemplify this train of thought with my practical research project for my state examination towards my teaching license.

It was the following observation that attracted my initial interest in starting a deeper inquiry. While I was a trainee, I was given the opportunity to try my fortune in teaching bilingual Politics & Economics classes (German as the school language, English as a foreign language), an area with thus far a very modest body of teaching and learning theories. From my first contact with practice, I observed that, roughly speaking, there were two groups of learners who did not feel completely comfortable with bilingual teaching. A classroom conversation revealed the following: group 1 consisted mainly of students interested in the English language but with no motivation for Politics & Economics as a subject. Group 2 comprised completely opposite students, namely those possessing no motivation for English but great interest in Politics & Economics. Thus, there was a challenge to develop an approach to cater to all of the learners' needs and preferences, including those lacking in skills and motivation.

In a micro experiment, I started using *The Simpsons* in order to promote both language and subject learning. From my observations and a first round of open feedback, I could infer that group 1 seemed to particularly enjoy the content of the TV series, and, as a consequence, vividly participated in exercises surrounding the subject of Politics & Economics. Group 2, in turn, was caught by the interplay of semantics and visuals, despite their initial reluctance toward the foreign language. As the content, owing to their interests, initiated an unprecedented willingness to take part in classroom exercises, it seemed likely that the *The Simpsons* had the potential to increase interest, and thus also the learning outcomes, in the bilingual subject. Thus, the idea for action to design, evaluate, reflect upon, and theorize a more systematic use of *The Simpsons* in classrooms resulted in a project to fulfill my thesis requirement. I named it *A Visit by Five Yellow People from Springfield, USA, to a German 9th Grade: What Can The Simpsons Contribute to Bilingual Teaching in Politics & Economics?* (Nijhawan, 2013).

After developing the main idea for the project, a literature review directed me towards a significant number of accounts describing the potential of *The Simpsons* to teach the contents of politics, economics, society, and culture (e.g., Cantor, 1999; Hall, 2005; Kristiansen, 2001; Scanlan & Feinberg, 2000). Obviously, action research constituted the logical method for the thesis because teacher trainees are required to demonstrate that they can plan, evaluate, and critically reflect upon a classroom project. As my interest in the question became more intense, and I believed that discussing my approach and outcomes would add value to this inquiry's findings, I decided to

establish a collaborative structure with interested colleagues from school and experts from university. The classroom atmosphere and student–teacher relationship had proven to be excellent, providing an outstanding opportunity to place the students' feedback at the center of the thesis.

Of course, such a project needs to go beyond merely watching the episodes in their full entity and having some unspecified classroom discussion. Rather, the real challenge was to make the students deliberate closely on the content, employing a progressive pedagogical concept. I therefore decided to use video sequencing as proposed by Swaffar and Vlatten (1997). In short, this includes reducing the input to 3–5 minutes per sequence and then combining it with task-based learning exercises in accordance with the relevant curriculum and the supply of designed material. In close consultation with the team structure I had established, I developed on four design cycles with the topics: (1) democracy, (2) social protest, (3) multiculturalism, and (4) the world of work.

I intentionally planned a full qualitative analysis of student feedback and output (observations, classroom discussions, and content analysis of written products). The analysis concluded with lessons learned from each design cycle as the first step towards a more comprehensive conclusion and the formulation of theories at the end of the study. For the final evaluation after the last cycle, I included a QUANQUAL survey also for internal triangulation purposes, thus ensuring the internal validity of the conclusions that developed during the continuous "action of designing, evaluating, and redesigning." Table 1 gives an overview of the research process along with the lessons learned from each design cycle. The box at the bottom presents some data from the final survey. Since a full presentation of all results would have exceeded the scope of this section, I had to choose a small selection simply to demonstrate how design-based action research can look in practice. By no means do I mean to engage in academic cherry-picking with the data I decided to include. Rather, I am happy to provide further insights into the raw data upon request.

Table 1
Overview of the research process

setting/input/objectives	lessons learned from output and feedback
(1) Democracy (Episode 8F01 3/1991): Mr. Lisa Goes to Washington) The first cycle included a session planned in the smallest detail comprising preplanned oral and written activities, such as a world café as a tool for language learning and visualizing the political concepts. Structured classroom discussions, including comparisons to Germany and beyond, were intended to deepen the content.	(1) need to try a more open arrangement (independent study); (2) more language work needed
(2) Social protest (Episode 3F06 7/1995): Mother Simpson) The second cycle included an openly planned lesson, with independent study at home as the main focus. Students were asked to explore a topic of interest with reference to social protest. They were prepared with historical input about anti-Cold War activism in the classroom. Core vocabulary with world fields was disseminated.	(1) vocabulary assistance is a must, (2) independent research needs structure as doubts about comprehension prevail, (3) risk of plagiarism needs to be actively addressed.
(3) Multiculturalism (Episode 5F04 9/1997): The Two Mrs. Nahasapeemapetilons) The third cycle included a full set of elective and clear-cut research tasks along with the dos and don'ts of internet research. The research took place in pairs to find solutions together. Some of the research was supervised in the computer lab to address problems instantly. Online sources (vocabulary and content) were provided.	A lack of controversy–key for P&E lessons–made the exercise rather dull. The students suggested supplementing the exercise with role plays and other methods in the classroom.
(4) The world of work (Episode 9F15 4/1993): Last Exit to Springfield) In addition to research tasks, the last cycle included a number of classroom exercises to engender multiperspectivity. Creative writing tasks with optional perspective changes (along with language work) were introduced. The cycle ended with a written exam to monitor any change and progress in competences.	Subject and language learning improved. But there is a need for further micro methods. The feedback structure requires optimization. An emphasis on language correctness is needed
Selected results from the final survey (N=23): (1) 17 students (74%) believed that the language work was more effective than lessons from the schoolbook, (2) 13 students (57%) confirmed that *The Simpsons* positively affected their interest in politics and economics, not a single student declared that they felt bored. **Example from the qualitative item [*sic!*]:** (1) "I learned a lot of very imoportant vocabulary I wouldn't have learned with the book. But my grammer never was the best but through watching and hearing how real americans speak (by the simpsons) I can build better sentences. I learned a lot of politics with the Simpson and i like that way because its not so strict and easy to understand.", (2) "Im actually not very interested in Politics and Economics, but the Simpsons made me understand it much better."	

The conclusions I summarized in my thesis mainly consisted of lessons learned from this contextual exercise. I then developed theoretical thoughts. Overall, I intended to show how an idea can be systematically implemented into the practice of teaching while contextually theorizing the findings along with recommendations for similar exercises. I could report ample evidence from this single case study the potential of *The Simpsons* to increase competences in both language and subject learning, and thus bilingual teaching. In accordance with the lessons learned, I recommended that similar projects be conducted and further work on a catalogue of episodes be done to establish a link to political and economic content. These would do well to provide ideas on how teaching and exercises could look. Furthermore, I argued for a focus on, *inter alia*, language correctness and the prevention of plagiarism through copying and pasting during independent research. To ensure the sustainability of my mētis, I published a journal article providing both theoretical accounts and practical advice for implementation purposes (Nijhawan, 2014). I therefore firmly believe that this design-based action research project contributed to the educational dialogue and further replication and development. To break it down to Schön's (1983) famous formula, it was "doing and thinking" at the same time.

Concluding remarks and outlook: towards an institutionalization of design-based action research?

In this article, I pleaded for mandating teachers have more space in educational discourse directed at educational improvements and reforms. The value of mētis is indisputable and therefore should not remain shuttered. This plea was put forward alongside an appeal for the further democratization of educational institutions. Policy requires clamorous large-scale educational research to induce systematic reforms, while the voices of direct stakeholders too often remain concealed.

Employing design-based action research, as I suggested and then exemplified in the research project about the use of *The Simpsons* in bilingual Politics & Economics classes, has another positive side effect. This article has revolved around teachers' mētis because we must never forget that the daily work of teachers is determined by close contact with students. Students will always remain the main stakeholders in schools. Group work as a symbol of classroom democratization, in combination with a feedback culture and a routine of evaluation within design-based action research, will ideally provide their voices with more authority also in the educational discourse. In a larger sense, it is a dual track strategy. Modern and critical pedagogy is based in constructivist theory. Therefore, constructing a science of teachers'

and students' mētis from below, and more horizontal structures in science *per se,* should be a welcomed approach when thinking beyond bridging the gap of theory and practice in education.

To reiterate, I see a strong synergetic relationship between positivist and pragmatic approaches. Pragmatic methods can prompt large-scale empirical research and *vice versa*, if representatives of each approach reciprocally acknowledge the use of the ostensible diametrical opposite. Scott (1998) has a nice way of exemplifying the synergy; he compared the more pragmatic approach with the ability to speak and the more positivist approach with grammar.

Let me present one more case referring to pragmatic methods as an example of the status quo of bilingual teaching in Germany. Bilingual classes can be characterized as a worldwide success story in terms of language and subject learning. Large-scale research has provided ample evidence about their overall effectiveness – e.g., DESI-Konsortium (2006), as the largest undertaking in Germany, and the classic example from Genesee (1987) in the context of Canada, with its long history of bi- and multilingual programs. However, the availability of clear-cut material in accordance with the curricula is close to zero. Moreover, competences to promote a bilingual surplus have not as yet been defined. As a matter of fact, there is a serious lack of qualified and trained personnel. Bilingual classes in German schools can thus only work with highly motivated teachers who are willing to spend extra time out of pure intrinsic motivation. Many of these pioneers have developed inestimable mētis. This means that a lot of mētis exists within schools with bilingual programs, without it having yet been made into a science. It would be distressing if this mētis remained concealed. Indeed, questions like "How do you actually teach bilingually?" are anything but uncommon. Against this background, a bilingual research project, along similar lines as the project with *The Simpsons*, was launched at the end of 2017. The research question will be: Which teaching and scaffolding methods can concurrently promote competence development in both the school and foreign language in Politics & Economics? Beyond developing mētis for making a science, I hope to provide further insights on the question of whether design-based action research proves a viable method for improving both teaching and academic inquiry.

Promoting incentives for both young and experienced teachers and researchers to engage in design-based action research can, as I have tried to show, be instrumental in consolidating practice and theory in bilingual teaching, and of course beyond. Any effort to bring academics and practitioners together within larger research teams, with some occupying dual roles, would be appreciated and indeed enrich the discourse about educational improvements and reforms. For this reason, I want to end this article with

a plea to include design-based action research into teacher training from its first phase at university. Methodological approaches that are directed towards consolidation of the gap between theory and practice need a sustainable treatment to democratically promote reforms from below and increase democracy and accountability. This, of course, requires equal openness from the scientific community and practitioners to take each other's voices and perceptions seriously.

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