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Evidence and its consequences in educational research

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We begin by arguing that the continuing dominance of 'evidence-based' thinking in educational policymaking does serious harm to the notion of evidence itself; also that it brings a loss of coherence to education as a practice that might wish to be regarded as a coherent and research-informed one. The second section of the article suggests that the invidious consequences of 'evidence-based' thinking are likely to continue unless energetically challenged by a vibrant and robust understanding of education as a practice in its own right. In elucidating such an understanding, we investigate closely the notions of practice and practitioner, and their intrinsic connections, drawing on landmark researches on practice by authors like Alasdair MacIntyre and Joseph Dunne. Building on the understanding of education as a practice in its own right, the third section argues that the Dewey-inspired notion of justified warrant, rather than proof or replicability, is more appropriate to research claims made in education. Here we focus in particular on action research, which has experienced recurring difficulties in having its research credentials recognised.

Keywords: engagement; consequences; warrant; inherent goals; practice in its own right

Introduction

'Evidence-based' approaches have gained an international ascendancy in educational policymaking in the last two decades, with some far-reaching consequences both for educational practice and educational research. This rise has, however, been accompanied by a mounting body of criticism. Prominent among such criticism are works by Smeyers and Depaepe (2006), Whitty (2006), Biesta (2007), Bridges *et al*. (2009), Biesta (2010) and Ladwig (2018). Far from being attacks on the notion of evidence itself, these studies have raised important questions about the nature and scope of evidence in educational research. For instance, they have highlighted the importance of adequacy and appropriateness in conceiving of evidence; also the importance of what evidence might properly be called upon to do. Bearing these criticisms in mind, we place the term 'evidence-based' in quotation marks as a reminder that the 'evidence-based' movement criticised in this article characteristically conceives of evidence in a deficient way. The critical studies just mentioned provide perceptive insights into how educational research is being progressively restricted and reshaped, frequently to models that prevail in medical/clinical research, with its predilection for randomised controlled trials

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(RCTs). Randomised control and experimental groups have, of course, long been a feature of empirical educational research, but RCTs have gained a new importance and influence in the first two decades of the twenty-first century (Cartwright & Hardie, 2012; Styles & Torgensen, 2018). Variants of the RCT model that have been notably influential with 'evidence-informed' policymaking in education are large-scale randomised *assessment* and *evaluation* tests, like the OECD Programme for International Student Assessment (PISA), and similar programmes.

Notwithstanding the ever-rising body of critical studies like those cited above, 'evidence-based' thinking remains firmly at home in the discourse of educational policymaking internationally. This can readily be gathered from a perusal of recent OECD and World Bank studies (OECD, 2007, 2016, 2017; World Bank, 2018). On any cursory appraisal this is hardly surprising. For instance, there is a striking note of confidence and self-validation in the words of OECD Secretary-General Angel Gurría, in his foreword to the most recently available PISA report:

> Over the past decade, the OECD Programme for International Student Assessment, PISA, has become the world's premier yardstick for evaluating the quality, equity and efficiency of school systems. But the evidence base that PISA has produced goes well beyond statistical benchmarking. By identifying the characteristics of high-performing education systems, PISA allows governments and educators to identify effective policies that they can then adapt to their local contexts. (OECD, 2016, p. 3)

The idiom here, characteristic of that in evaluation reports on education by the OECD and the World Bank more widely, carries a sense of reassurance that everything important is capably in hand. Absent is an awareness that there might be something problematic, not to say deeply questionable, in the assumptions underlying the regular use made of terms like 'evidence', 'equity', 'effectiveness' and 'high-performing' in relation to appraisals of quality in education. On any more-than-cursory examination, this kind of inattentiveness is startling in what it leaves out of the account. Only by recovering what is thus neglected, indeed only by restoring to education its proper distinctiveness as a human undertaking, can one make inroads into tackling the kind of neglect that 'evidence-based' thinking continues to bring in its train. We begin then, with a review of the extent of the neglect.

'Evidence-based' thinking in education: A loss of coherence

In an era when 'quality assurance' is a major public concern, the development of evaluation instruments understandably becomes a big growth area. So common has the term 'quality assurance' become in education—as well as in other practices—that it is widely assumed that its meaning is self-evident.[1] It is just here, however, that we need to pause: to look more critically at what quality actually means in the experiences that constitute any particular instance of educational practice. In his late work *Experience and education*, John Dewey succinctly restated the fruits of his lifelong reflections, giving close attention to the question of quality in educational experience. Here he offered the following insight to distinguish between the 'educative' and 'mis-educative' in such experience:

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> Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience. An experience may be such as to engender callousness; it may produce lack of sensitivity and of responsiveness. Then the possibilities of having richer experience in the future are restricted. (Dewey, 1938a/1997, p. 25)

The insight is a concise but a decisive one. Such restrictive consequences, where they occur, diminish the quality of what takes place in the learning environment. They are quite commonly found among students who fail more than they succeed in school, who come to regard school with some aversion, or who even dismiss it as a place where they just don't belong. Long-term research studies, such as those of Kathryn Riley in urban school settings in the UK and internationally, provide some telling illustrations of such consequences, for all that they may be unintended ones (Riley, 2017).

But Dewey's insight also serves as a reminder that countless students who leave school or college with credentials they value will frankly admit they are glad to be rid of maths, French, biology, or other subjects that were endured with prolonged distaste. Dislike of certain subjects or topics can take lasting root in the schooling experience, not least where the subject is taught with a view more to extrinsic demands than to opening up the subject's inherent possibilities (e.g. teaching to the test), or to a surfeit of pre-specified 'outcomes'. Restrictive consequences for educational experience may also arise from political efforts to control schools, either directly or indirectly. For instance, securing such control may be so essential for a church, state or other contending party that the provision of high-quality educational experiences becomes secondary to ensuring decision-making structures that enable the interests of the dominant party prevail. With some notable exceptions (e.g. the UK during the middle decades of the twentieth century, Finland in recent decades), the history of education is replete with examples of this latter tendency (Simon, 1960; Boyd & King, 1999; O'Donoghue, 1999). (For notable exceptions, see McCulloch, 2001; Aho *et al.*, 2005.)

This brings us to one of the decisive conclusions to be gathered from the critical studies referred to in our opening paragraph: where quality in education becomes mainly associated with the measurement of one-dimensional 'outcomes', the question of quality itself tends to become recast as a matter of indexed quantity—of test scores, examination results, merit points and so on. In such circumstances, core questions of quality itself get sidelined, or even drop out of the picture. As such a pattern becomes institutionalised; the understandings of educational practice that come to prevail among educational professionals themselves can suffer a serious arrest, or debility.

Official redefining of teacher professionalism in progressively more restrictive ways since the 1990s is a consistent theme for critical investigation in much educational research in the last few decades (e.g. Maclure, 1998; McCulloch, 2001; Robertson, 2012; Sahlberg, 2016). This narrowing of perspective in official quarters can have seriously detrimental consequences for how teacher education and professional development are understood, and also for research in these fields. It mirrors, moreover, the restriction of scope, mentioned at the outset, that 'evidence-based' thinking brings into the professional cultures of educational research itself. There is something of a 'paradigm shift' here, but not for the kinds of reasons Thomas Kuhn notably

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explained: that is, the gradual or more prompt abandonment of an older paradigm which has become discredited by a more inclusive and demonstrably superior one (Kuhn, 1970). Rather, the shift in question represents a loss as distinct from a gain in understanding, a decline rather than an advance in research proficiency. It can be associated with a gradual or more prompt consciousness among researchers of the kinds of research that are more likely to draw approval from funding bodies (i.e. large-scale studies that conceive evidence predominantly in quantifiable and readily indexable terms).

Recent research that has investigated the redefining of teacher professionalism highlights historically new trends such as: (a) the increasing control of teachers' work by influential international bodies like the OECD and the World Bank (Robertson, 2012; Sørensen & Robertson, 2017; Robertson & Sørensen, 2018); (b) the 'remaking of the professional teacher in the image of data' (Lewis & Hardy, 2017; Lewis & Holloway, 2019); (c) the use of value-added measures in making appraisals of teachers' work (Berliner, 2014; Amrein-Beardsley & Holloway, 2019; Greene, 2018).

Regarding the first of these trends, the comparative historical research of Susan Robertson has traced a number of unprecedented developments. In particular, she shows how

> since early 2000, a growing number of global actors [she mentions the World Bank and the OECD especially] have gained greater control over the rules for classifying and framing the good teacher, legitimated by arguments such as the need to create more efficient education systems and competitive knowledge economies and to manage a crisis in the teaching profession. (Robertson, 2012, p. 589)

Such control, Robertson illustrates, is increasingly advanced through initiatives like the 'Systems Approach for Better Education Results' (SABER) project of the World Bank. This, like the ongoing TALIS project of the OECD, gathers data at an international level on a wide range of 'teacher characteristics' and 'student learning outcomes' (Robertson, 2012, p. 599), but gathers little on actual experiences of teaching and learning.

Increasingly there is an acknowledgement in official documents such as the SABER-Teacher publications of 'successful education systems' like Finland, Ontario and Japan, and of the importance of 'teacher autonomy' and 'collaborative practices' among teachers in these jurisdictions (World Bank, 2013, p. 25). But such remarks sit uneasily with the pervasive references to 'teacher effectiveness', measured by 'student outcomes', as the standard criteria in gathering pertinent evidence (World Bank, 2013, 2015). Where the evidence that matters is largely restricted to 'teacher performance data' and 'student achievement data' (World Bank, 2013, 2015), educational goals of enduring importance struggle to get a look in. Such neglected goals include, for instance: the promotion of learning practices that involve an authentic engagement with the subject or topic being studied; the cultivation of study attitudes that enable such practices to become self-sustaining capabilities; the building of learning environments that habitually embody co-operation, team work and initiative-taking among students. To say that goals like these are probably ultimately beyond measure, far from being an evasive gesture, is to face up truthfully to an important educational reality. Being beyond measure, however, does not suggest that they are beyond

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appraisal. In fact, the regular monitoring and evaluation of such goals are among the core responsibilities of educational practitioners. And to the extent that research evidence fails to embrace these dimensions centrally in the normal conduct of its work, that work remains half done, or worse.

The second trend, the recasting of teachers 'in the image of data', is no less disquieting than the first. There are two related aspects to this trend, and while both look like first-time developments in the history of education, both mark the recurrence of discarded practices in a new and more intrusive key. The first aspect is the emergence of a wide-scale tracking of teachers' work that brings about an increasingly de-contextualised professional culture. It carries resonances of old-style school inspections, but with much more powerful tools of surveillance, now administered and strategically controlled from above through digital means. As Lewis and Hardy (2017) explain, through its advanced data-gathering operations it provides 'the means to differentiate between successful and unsuccessful school/system performance by way of a common reference, irrespective of their [schools'] specific location or context' (p. 220). The second aspect of this trend concerns a systematic use of data that promotes conformity and ultimately acquiescence among teachers. Lewis and Holloway (2019) report in the following terms a key conclusion of their research on this development in two studies of US-based schools: 'Our analyses reveal that teachers at our schools were most valued for demonstrating a disposition favourable to data, were amenable to being represented by data and, ultimately, sought to improve data over other educative practices' (p. 37). The conformist dispositions promoted here seriously diminish education as a practice. They are just the reverse of the pedagogical leadership qualities needed to pursue enduring educational goals like those mentioned in the previous paragraph.

The third trend, often confluent with the second, concerns the progressive adoption of value-added models (VAMs) in identifying the 'most effective' and 'most ineffective' teachers. In an article published in 2014, when the introduction of such models was being considered by policymakers, veteran US researcher David Berliner cautioned that there were intractable difficulties associated with them. Quantifying with any meaningful degree of validity or reliability the contribution made by an individual teacher was a 'fatal flaw', Berliner concluded, because of the inescapable presence of myriad 'exogenous variables' in school learning environments (Berliner, 2014). Nevertheless, the use of VAMs among school districts in the USA spread widely and became a central plank of 'evidence-based' policymaking and implementation (Greene, 2018). In a comprehensive study of VAMs in the USA, Amrein-Beardsley and Holloway (2019) point out that by 2016, '44 states and D.C. had adopted and had at least begun implementing VAMs to evaluate and, in many cases, make important decisions about teachers (e.g., teacher tenure, merit pay, teacher termination)' (p. 2).

Common to trends like these three, and the new reform movements of which they are part, is a manifold loss of orientation and coherence for educational endeavour itself. Firstly, there is the restriction of research vision and possibility, arising from and contributing to a defective understanding of the notion of evidence. Secondly, there is the loss of focus on the experience of teaching and learning, including its deeper possibilities and responsibilities. Thirdly, there is the eclipse of what quality in

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teaching and learning might actually mean—an eclipse that also results in a severely shrunken conception of educational practice. Finally, there is the unfortunate acceptance by some teachers themselves of a devalued professional identity, shaped mainly by what quantitative measurements can capture and process. It is deeply ironic that in an age where the reach of 'big data' becomes even more pervasive, such a diminished view of what it means to be a teacher can be the product of educational research itself.

This manifold loss of orientation and coherence can debase educational practice, and the work of its wide variety of practitioners, to a process that is strategically contrived and administered. This would deny it the standing of a practice in its own right that is to be renewed and enhanced—not least through the co-operative efforts of practitioners, researchers and policymakers. The loss represents then an urgent challenge to any educational research that seeks to be equal to its responsibilities. In accepting this challenge, we will seek in the next section to recover and elucidate an understanding of educational practice that highlights its distinctive features and that differentiates it from anything called a process, whether human or otherwise. We need hardly stress that this understanding will necessarily be more inclusive, and also bolder, than the 'evidence-based' conceptions already considered. We believe it will be intellectually robust, and trust that it will be hospitable in particular to forms of research that educational practitioners of all stripes may find invigorating and transformative.

Educational practice: The fruits of engagement and venture

Anything that is called a practice—and to which the word 'practitioner' might properly apply—unavoidably has some inbuilt normative orientations. Such orientations arise from the inherent goods or benefits of a practice itself. They define and distinguish the practice, they broadly identify the main value commitments of its practitioners, and they underlie its claim to some degree of autonomy in pursuit of its goals. This is not to say that value conflicts among practitioners are thus removed. It is to suggest, rather, that such conflicts might become more focused and more productive, and that many earnest efforts that yield more division than insight might be saved. A few concrete examples may be helpful here. For instance, the inherent goods of medicine as a practice have to do with the studied promotion of health, not just the diagnosis and treatment of illnesses. Those of architecture as a practice have to do with the design and construction of optimal environments for living and working, and for sporting, cultural and other pursuits. Such examples show that the inherent goods of a practice are valuable in a manifest sense. They are not just abstract goods referred to in phrases like 'art for art's sake', or 'learning for its own sake'. They also highlight the point that dedicated, sustained and open-minded enquiry (i.e. research and critical debate) is called for if a practice is to develop and flourish and if its benefits are properly to be so regarded.

In exploring these issues, the researches of Alasdair MacIntyre and Joseph Dunne (MacIntyre, 1985; Dunne, 1997; MacIntyre & Dunne, 2002) are pertinent as they shed fresh light on the question of practices and their inherent goods. These researches have largely taken up themes like *praxis* that remain central in the Western

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inheritance of practical philosophy (e.g. Carr, 1995; Bernstein, 1999), exploring a concern with reflective action in pursuit of what ought to be done. MacIntyre's often-cited description of a practice is as follows.

> By a practice I am going to mean any coherent and complex form of socially established co-operative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved, are systematically extended. (MacIntyre, 1985, p. 187)[2]

A number of critical points follow from this tightly packed description. Firstly, not every form of action counts as a practice—for instance, repetitive tasks that are increasingly taken over by machines (e.g. checking out purchases in a supermarket). Also excluded are many actions to which the word 'practice' might apply in everyday usage: 'She developed the practice of rising before daylight'; 'Nightly practice made him a first-rate darts player'. Secondly, without a discerning understanding of the notion of practice, and its intrinsic links to practitioner commitment, practitioners themselves might regularly fall short in valuing and realising the inherent goods of a practice. For instance, they might desire disproportionally the *external* goods of a practice, such as the high remuneration, high social standing, bonus inducements or enviable holiday entitlements associated with it. Also relevant in the absence of such a discerning understanding are the diminished views of their own work and worth among teachers, reported by Lewis and Hardy and by Amrein-Beardsley and Holloway, mentioned above. Thirdly, the 'standards of excellence' referred to by MacIntyre arise from inspirations that provoke and nourish fresh possibilities for enhancement among practitioners themselves, including through various forms of research. The corollary of this is that standards of excellence developed by strangers to the inherent goals of a practice may lack any convincing substance. They may obscure these very goals and jeopardise the health and standing of the practice itself. Finally, MacIntyre's description highlights the historical nature of a practice. It thus brings home the point that in the twists and turns of history, practices can wane or atrophy as well as flourish.

Explorations in this kind of vein allow illuminating distinctions, with important practical consequences, to be made between the inherent and external goods of individual practices. With this comes a keener awareness of a key ethical point: the need to identify and refine, to cultivate and uphold, such inherent goods. These may include virtues that are quietly embodied in the practice when faithfully pursued, whether it be nursing, cabinet making, teaching, or whatever. Dunne illustrates as follows:

> To really engage with a practice in the sense of striving to realise the goods intrinsic to it... is to acquire, in doing so, qualities such as honesty and humility (in admitting the shortcomings of one's attempts), as well as patience and courage in sticking at a task, even when it does not offer immediate gratification, and a sense of justice and generosity in co-operating with others in projects that require a kind of partnership which overrides the rivalries of individuals precisely insofar as it responds to the demands of the practice itself. (Dunne, 2005, p. 153)

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To say this is to point out that authentic engagement in a practice nurtures a range of dispositions that are complementary and that contribute to strengthening the practice itself. The corollary, as we have just seen, is that where such authentic engagement is impeded for one or other reason, the dispositions cultivated can become ones where the inherent goods of the practice get beclouded, or lost from sight.[3] Turning now from practice more generally to a practice such as education, the thinking and actions of teachers become central in singling out inherent goods. So do those of students, school leaders and others who influence the context where practice takes place. Paradoxically, to enable the inherent goods of educational practice to come clearly into view, it might help if we remove the teacher momentarily from the picture. This allows us to appreciate that, even where a teacher is not present, genuine educational practice is a *joint* activity, or interplay, between what we will call a student on the one hand, and one or more inheritances of learning that seek to address and engage the student on the other hand. What is important is that this interplay gets underway and is sustained or regularly renewed, so that 'thoughts can take wing', co-operatively and individually, and fluency and pertinent questioning are progressively nurtured. Contrary then to one-sided conceptions that are 'teacher-centred', 'student-centred' or 'subject-centred', educational practice can now be seen as a form of joint venturing; as renewed interplays that need to be sustained with perceptive insight, discerning foresight and reflective hindsight. We thus begin to identify more closely some of the distinctive features—including value orientations—of education as a practice, and allow the possibilities and responsibilities of teaching to emerge in their proper light.

Pursuing this further, educational practice, where its range of offerings is inclusive and well-judged, seeks to disclose (i.e. uncover) the potentials that are most native to each person. It endeavours to open up new imaginative neighbourhoods where such potentials can be engaged and developed. This highlights the *ever-emergent* character of the inherent goods of the practice. They are not the kinds of things that are permanently visible, or that can be secured for once and all. Among such emergent benefits, Dunne identifies the following that connect students or pupils as individuals to important social and historical contexts:

> release from the tyranny of the ego through a focusing and concentration of energies on goods that transcend themselves (thereby paradoxically enabling them to discover and realise themselves); release from a vacant present through partnership in a tradition that is richly alive in the present, stretches back into the past and, partially through them [students], can be extended forward into the future; the achievement of competencies which are ones of the whole person, and which... call into play qualities of creative insight, judgement and expression. (Dunne, 2005, p. 155)

Our own research work with post-primary teachers, normally involving action research initiatives, has regularly sought to promote the kinds of engagement that allow benefits like those just described to be realised (Deery *et al.*, 2017). Not surprisingly, this research showed that such engagements are sometimes difficult to achieve. For teachers they raise challenges concerning the nature of power and the development of strategies to enable the less powerful to be heard. This also

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requires teachers 'to flatten out hierarchies and open up spaces that promote a sense of equality' (Chappell & Craft, 2011, p. 364). When sustained and supported through action research initiatives, however, these kinds of interactions afforded students the opportunity to challenge one another's thinking and break out from what might be deemed rigid confines of culturally assigned identities. Representative examples from research by teachers working with us include: developing restorative practice programmes to shift the emphasis from managing students' behaviour to nurturing constructive learning relationships (Stowe, 2013); promoting feedback practices to enable students to take a more active and responsible hand in their own learning (Kiely, 2017); and building models of co-operative learning to promote literacy and numeracy across the curriculum (Fitzpatrick, 2017).

Learning environments can be rendered quite inhospitable to such undertakings, however, whether through obstacles springing from students or their backgrounds, or through the persistence of bureaucratised educational policies, or through pedagogical shortcomings that remain unaddressed. It becomes more possible to make progressive inroads into such difficulties where the work of teachers, school leaders and others who constitute the body of educational practitioners is publicly acknowledged as a *practice in its own right*. It is distinct, that is, from a subordinate practice to be controlled by 'the stronger party' in society, or from an essentially contested undertaking to be fought over by contending interests. The failure to acknowledge education as a practice in its own right can often amount to a failure to see it as a practice at all. As noted earlier, such failure is recurrently evident in the history of education, as it is in the educational reform policies that are prevalent at an international level in the early twenty-first century. It rests on ignoring or resisting the idea that educational practice has, from Socrates onwards, intrinsic, definitive goals and insisting instead that its key goals must be prescribed from outside.

Maintaining that education is a practice in its own right, however, is not to seek any absolute autonomy for such practice. Rather, it is to allow educational experience, including its more manifest and less evident dimensions, to come properly into the picture and to be more fully understood. This also allows for full and proper answerability of the practice to the public, for the fruits it offers and the public resources it receives. Further, recognising education as a practice in its own right serves to remind educational research that its responsibilities are to the fullness of educational experience, not just the dimensions of that experience which readily lend themselves to quantification and indexation. The following observation by Dewey, with which we will conclude this section's explorations of educational practice, underscores these points and illustrates the centrality of what is missed where deficient conceptions of evidence are employed:

> Perhaps the greatest of all pedagogical fallacies is the notion that a person learns only the subject he is studying at the time. Collateral learning in the way of formation of enduring attitudes, of likes and dislikes, may be and often is much more important than the spelling lesson or lesson in geography or history that is learned. For these attitudes are fundamentally what count in the future. The most important attitude that can be formed is that of the desire to go on learning. (Dewey, 1938a/1997, p. 48)

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Evidence as justified warrant

Let us begin this last section by considering briefly, for comparative purposes we will pursue in a moment, the kinds of research that inform practices such as engineering and medicine. These do not have to concern themselves with illuminating the unfolding terrains of human experience. Primarily they involve investigations of processes that are physical, chemical or biological in nature. Evidence here is properly characterised by the most demanding requirements of precision, proof and predictive accuracy. Because of such requirements, as well as the nature of the research itself, it makes sense to talk, *in this context*, of variables that can be systematically excluded or controlled, of replicability and indeed of 'what works'. To give a telling illustration of the contrast with researches on human experience, let us recall the case of Australian researchers Barry Marshall and Robin Warren, who jointly won the Nobel Prize for Medicine in 2005. Their research provided a new understanding of the causes of stomach ulcers, leading to an acknowledged cure—as distinct from recurring treatments—for this condition. By showing that the main cause was a bacterium called *Helicobacter pylori*, which could be tackled with an antibiotic, their research undermined the dominant theories on ulcers and their causes (excess acid, stress, etc.). But this also led to revolutions in medical practice, for instance by making surgery for stomach ulcers a thing of the past. For many years medical researchers and practitioners had been widely sceptical of Marshall's and Warren's theory, believing that 'a bacterial cause was preposterous' (Marshall, 2005, p. 267). Only by meeting the highest standards of precision, proof and predictive accuracy could the new theory overcome such scepticism. The 'what works' idea is appropriate here then, as the new theory, not least its predictive accuracy, became widely embraced by medical practitioners, yielding new standard procedures that prevailed over their displaced predecessors.

If the fullness of educational experience could be captured in a comparable manner to how the Marshall and Warren theory captured the phenomenon of stomach ulcers, concepts like generalisability, replicability or 'what works' might properly prevail in educational research. But theoretical attempts to capture the heart of educational experience, indeed human experience in any of its modes, cannot accomplish what theory in the natural sciences can. In fact, such attempts are arguably mistaken from the start, contriving to erect imitative methodological structures, but frequently serving also to obscure a more important concern. That concern is with the *adequacy and appropriateness of evidence to its task*. It is here that Dewey's notion of 'warranted assertability' comes in. In opposition to dogmatic conceptions of logic, such as those underlying all variants of positivism, Dewey emphasised the provisional, inclusive and ongoing character of any research enquiry that seeks to do justice to its subject matter. Illustrating that logic was not something external that could be imposed on enquiry from the outside, he stressed that 'all logical forms arise within the operation of inquiry and are concerned with control of inquiry so that it may yield warranted assertions' (Dewey, 1938b, pp. 3–4). By pointing out that logical forms '*originate* in operations of inquiry', he revealed the hypothetical, as distinct from the sovereign, nature of logic itself, thus highlighting that logic might operate in somewhat different ways in different disciplines. But importantly, something common remains: namely, the conclusions offered by a research enquiry of any kind would be in the form of

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warranted assertions, not in the form of new certainties to be added to an existing stock. Among the features of such a research approach are a recognition of the provisional nature of even the best of the fruits of enquiry to date, a continuing openness to criticism and an obligation to give a fair hearing to the unfamiliar (p. 4ff).

While Dewey advanced these arguments as applying to all forms of enquiry, they reveal in a compelling way why, in explorations of human experience, justified warrant—rather than replicable proof—is the notion 'with better claim'. Incisive illuminations of such experience are called for in the kinds of research that seek to enhance educational practice, investigating its possibilities for flourishing and the many setbacks to which it is vulnerable. Recall here that educational practice is properly to be understood as a joint venturing, distinct from any mere transmission process. This is a venturing, moreover, that seeks to open up new imaginative landscapes. It endeavours to engage students in renewed encounters with vibrant inheritances of learning and, in doing so, attempts to reach beyond exhibited behaviours so as to uncover and cultivate capabilities that are most native to each person.

The appropriateness and promise of the notion of justified warrant are perhaps best illustrated through an example from educational practice itself. Our example will feature Kate, a teacher of English in a secondary school, and a class of Fifth-Year students (i.e. mean age 16 years). Kate is not an actual person, but what we describe here of her thoughts and actions is representative of our ongoing work—mainly involving action research—with teachers. The teachers are participants in a professional development programme called 'Teaching and Learning for the 21st Century' (TL21) that embodies the kind of research rationale we are arguing for in this article (www.maynoothuniversity.ie/TL21). This Fifth-Year class, comprising boys and girls, is widely regarded in the school as 'troublesome'. Its salient characteristics include low achievements in tests and exams, little interest or motivation where study is concerned, poor attendance by some students and attitudes to teachers ranging from minimal compliance, to bored toleration, to hostility. There are many files in the school records on the students' ill-behaviour. As a curriculum requirement, Kate has to do a 'classic drama' with these students. She begins judiciously by consultation and suggesting a Shakespearean tragedy. Most of the students balk at this and many counter with the idea of making up their own play, in the form of a television soap. Judging the circumstances carefully, Kate can see that choosing a Shakespearean drama will serve neither the students nor Shakespeare well in the weeks ahead. Eventually she gets a workable measure of agreement on Sophocles' *Antigone*, after reading aloud some extracts that highlight the passion, tension and violence in the play, and importantly that reveal the lucid English of the translation (Heaney, 2004).

There are six main characters in the play, which allows the students to form three casts, loosely understood. At any given time the chorus is made up of all who aren't currently involved in the scripted dialogue. The students want to insert lines of their own into the play and this is eventually agreed, provided that it is occasional, that it doesn't distort the sense and that no foul language is used. Although there is much turbulence, especially in the early days, Kate is pleasantly surprised to see how much the students throw themselves into the play, making it in a key sense their own project. They want to launch a 'Justice for Poly!' (Polyneices) campaign with posters around the school; they want to enact the play in a series of sketches; and they want

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some video recordings to be made of these enactments. All of these goals are gradually accomplished through progressive encounters that enable the characters and issues of the play to gestate with the students, and in ways that few would have thought possible.

As Kate's *Antigone* initiative with the students is also an action research project, evidence is gathered in her thesis on each stage and each dimension of the work, and is regularly reviewed with her research supervisor. That evidence is manifold, key features of which include the following: advances—in some cases striking ones—in students' voluntary engagement with a classic drama; improvements in students' oral competence, including voice modulation, clarity of expression and accompanying bodily gestures; steady progress in participation in both classroom exercises and homework; substantial changes for the better in the classroom atmosphere and in the quality of relations between teacher and students and between students themselves; abundant feedback comments from the students, gathered through recorded discussions with the three casts; impressive advances in written test results—in this case on the theme of tragic drama.

This indicative sketch of the evidence assembled shows just how much that is vital is left out in research that concentrates primarily on the last of the six dimensions mentioned: written test results. There is no educationally convincing reason why the other five dimensions shouldn't count as equally important outcomes, properly understood, as the last one. Together the six sources of evidence provide a fuller account of the quality of the educational experience in the class. They also provide a convincing warrant for the claims made in Kate's research.

Kate's study is representative of many studies by teachers in the TL21 professional development programme, either on teaching and learning in specific subject areas, or on leadership questions in building fruitful learning environments. We should stress here that this kind of research tellingly illuminates what is distinctive and irreplaceable in educational practice; also, it makes no claims about 'what works'. All that can be claimed for it from this latter perspective is that the initiatives that succeeded did so *in the circumstances in which they were undertaken*. Making the circumstances favourable to the initiatives invariably involved a lot of reflective planning and imaginative venturing in the teachers' relations with their students, with the subject or topic in question, with colleagues, with the school leadership and so on. Likewise, neither are any claims made for proof, or predictive validity. Rather, as can be gathered initially from the example just presented, the notion of justified warrant arises from a different kind of rationale. In the TL21 programme that rationale runs roughly as follows. Firstly, the evidence aims to be inclusive—taking in attitudes *to* learning, practices *of* learning, achievements *in* learning, as well as remaining alert to other collateral aspects and consequences. It thus seeks to do justice to the fullness of experience in teaching–learning encounters. Secondly, in illuminating what succeeded or didn't succeed with the initiatives undertaken, this kind of research foregrounds the analysis of reasons *why* something succeeded in practice or didn't, with an analysis of the kinds of challenges and obstacles that were overcome, or weren't. Thirdly, in the course of this kind of research the assumptions or preconceptions the different participants harboured at the outset become increasingly explicit, sometimes suddenly so. Attention thus becomes focused, in a Socratic-practical way, on how such

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assumptions stand up or become changed when exposed to challenge as the research progresses through its successive phases. Fourthly, such research furnishes a fund of ideas for promising action; ideas that are suggestive rather than proven, and that may resonate strongly with colleagues in similar, or even different, circumstances. Fifthly, research pursued in this manner invites discussion and criticism of such ideas among practitioners more widely, yielding variants that might be refined and tailored to a range of pedagogical contexts. Such wider discussion properly includes teachers, school leaders, educational researchers, school inspectors, policymakers and others. Finally, but not least, the ideas for practice that are generated are at the same time ideas that may provoke further inspirations for research activity itself, opening up previously unseen possibilities for transformation and enhancement of educational practice.

The rationale presented in outline in the previous paragraph suggests something central about the research standing of action research itself: its own epistemological warrant and credentials, on which many have written (e.g. Somekh, 2003; Elliott, 2006; McNiff & Whitehead, 2009; Higgins, 2016; Foreman-Peck & Heilbronn, 2018). We locate the origins of that warrant firmly in the Western tradition of practical philosophy, especially as disclosed in the examples of Socratic practice in the early Dialogues of Plato (Plato, 1984). In this we are not disowning the contributions of figures like Kurt Lewin or Donald Schön, who are usually regarded as respective pioneers of action research and reflective practice. Rather, we are suggesting that their researches are properly to be seen as latter-day contributions to a tradition of enquiry of ancient ancestry. But to pursue such a suggestion in detail is a task for another day.

Conclusion

The case we have been making doesn't seek to dismiss the claims of large-scale educational research studies that see themselves as sitting comfortably in a 'what works' orientation. Neither do we wish to make exclusive claims for action research (i.e. that it is the only form of educational research that can enhance practice). But we would wish to stress that where large-scale policy-oriented research is concerned, the nature of the evidence being presented, together with the many limitations in its scope, need to be fully acknowledged from the outset. Without such full acknowledgement, the copiousness of the data offered in such studies (e.g. World Bank and OECD), and the sophistication of the diagrams and charts included, may make the research look more comprehensive than it actually is. One might be led to the conclusion, for instance, that the evidence is as rich in quality as it is extensive in quantity. One might equally miss the point that, on what really matters in educational experience, the research may omit more than it includes.

By contrast, research that is properly designed to enhance educational practice, and specifically action research, seeks continually to keep in its sights a coherent notion of that practice, including its many interweaving dimensions. Accordingly, it makes it its business to furnish as many forms of evidence as are pertinent to illuminate the problems and identify and pursue constructive possibilities. It also remains keenly conscious that the notion of justified warrant, as distinct from proof or replicability, is both faithful and conducive to this purpose.

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Data availability statement

Research data are not shared.

Ethical guidelines

The research for this article was pursued under the BERA Ethical Guidelines. Ethical approval for the action research studies cited in the article was given by the Education Department Research Ethics Committee, Maynooth University.

Conflict of interest

There is no conflict of interest.

NOTES

[1] Our references to 'education' throughout the article are to formal education as a public concern.

[2] In a transcribed interview with Joseph Dunne for the *Journal of Philosophy of Education* (MacIntyre & Dunne, 2002), MacIntyre remarked that 'teaching itself is not a practice, but a set of skills and habits put to the service of a variety of practices' (p. 5). This rather technical depiction of teaching provoked some productive debate (see Dunne & Hogan, 2004), but in any case, within the variety of practices, MacIntyre identified 'the practice of making and sustaining the communal life of the school'. This brings centrally into the picture a range of practices of study, into which students are 'initiated by education' (p. 8) (i.e. by teaching viewed in the broader sense of an occupational commitment rather than a discrete task or a mere ingredient). It is notable that in later writings (MacIntyre, 2008, 2009, 2016) he draws on his characteristic thinking on practice to support his advocacy of dedicated environments that sustain communal practices of learning.

[3] How dispositions get cultivated in engaging with a practice, as described here, is not nearly as evident where engaging in a process is concerned, despite the fact that 'process' is often used colloquially when 'practice' is what is meant.

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