THE EPISTEMOLOGICAL DEVELOPMENT OF EDUCATION

CONSIDERING BOURDIEU, FOUCAULT AND DEWEY

Andrew Skourdoumbis and Scott Webster

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This book documents the political and economic ramifications of the policy impetus for a "science of education" and what this means for classroom teachers, their teaching practices and for the field of education.

In a critical exploration of current research and policy articulations of the purposes of education, with attention given to Australia, the UK and the USA, this book delineates the evaluative mechanisms involved in the strategic science as method adoption of accountability, competitiveness and test-driven criteria used in major education policy. It brings together the disciplines of sociology and philosophy by drawing on the theoretical insights of Michel Foucault, Pierre Bourdieu and John Dewey. In addition, the book argues for the deliberate use of the theoretical in education and is against the contemporary unquestioning advocacy that often accompanies a narrowly defined master narrative of a science of education.

This book will be of special interest to post-graduate students as a source material in general education courses and is also intended for academics with an interest in educational theory/philosophy and the sociology of education.

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**Andrew Skourdoumbis
and Scott Webster**

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Introduction – what this book is about

The main argument of our book begins with the claim that genuine education is being reduced to comprise essentialist inputs such as particular teaching strategies, and outputs consisting of an array of assessment requirements for students, teachers and school communities. One of the consequences of this government-regulated reduction of teaching and schooling practices is that our education is no longer worthy of democracy. This argument shall be presented by focusing on how education itself, through its epistemology, has been colonized by powerful forces of governance, which have not only thwarted the educative growth of students but also seduced teachers into understanding their role as being primarily one of technicism. We claim that this is made evident by how the epistemology of education has fallen victim to a particular "science of education", which neither is actually scientific and nor does it engage with genuine education. In order to develop this argument, we shall primarily draw upon French Social Theory, specifically the works of Pierre Bourdieu and Michel Foucault, along with key Deweyan elements of philosophical thought. We shall critique and explore the political and economic origins of the contemporary policy compulsion to constitute a "science of education" under the broader umbrella of an epistemology of education in order to bring to the fore how teachers themselves have come to understand their own identity as well as their role within schools.

There are two other subsequent themes that emerge. The first is a critique of financialization and corporatization. These are two of the most active motors of modern expansionist Capitalism which, when coupled with an intensifying international shift in economic powers, have evolved to exert control over education policy and practice that governs. This is a characteristic of systems of economic production that are dependent on the range of transformations, forms of labour and uncritical consumption, which are evident in the post-1980s strategic approach to employment that encompass flexibility, creativity and innovation. The second sub-theme, which has emerged and connects to the first, is a deliberation upon the activating mechanisms inherent in an economic ordering centred on the destabilizations of "crises" that amongst other things have not only had a profound effect on how we view and evaluate teacher productivity, effectiveness

and performance, but more profoundly they have also sought to actually re-shape our theorization and understanding of education.

To this end, this book is guided by a first major research question: What is the contemporary education policy origin of the compulsion to reduce the epistemology of education to primarily be constitutive of a "science of education"? In asking this question, we explore why the field of education is dominated by particular political and economic interests which, when taken together, amount to a push for "being scientific", but which we say, downgrade the knowledge of the philosophical, sociological, moral and political. In the latter part of the book, we are then guided by a second major research question: How might the epistemology of education actually be enhanced through a science of education? Some of the importance of exploring these two key questions has already been recognized by other scholars. For example, Carr (2006, 2007) has reported on a distinctive shift in education theory from philosophy to science. We see that the implications of this eventuality limit the epistemology as well as the actual educative value of education as a discipline with the capacity to question and critique and therefore provide a critical aspect to political life. We claim that this has crucial significance for democracies. Prevalent political-economic structures and the control they exert over how we interpret and understand the world facilitate and in some instances exacerbate the instabilities of crises – manufactured or otherwise. The instabilities connected to the present version of capital production controlled through corporate domination viewed best as an aggressive form of financial value extraction, has reshaped the purposes of education. This re-engineering of the field of education towards one which is considered "scientific" and therefore measurable and controllable, is about configuring education as a means of furthering this economizing agenda that comes at a dreadful price for individual liberty, teacher autonomy and democracy more generally. By an economizing agenda, we mean the organization of the field of education along a "scientific" configuration that is not accidental as such. It is we say the application of "science as an ideology" (Berman 1978, p. xvii) and as such can be understood as "tyrannical" (Feyerabend 2011) depending on its rationalizations and instrumentalist techniques which condition and frame questions of educational import. An important outcome of this process is the policy reconceptualization of teachers' work and identity where the conditions of educational success for classroom teachers, students and the education system as a whole is marked by apolitical and amoral evaluative determinations of effectiveness and quality.

This book is in many respects about how current political and economic parameters restrict teacher agency to being non-scientific and about the opportunity for teachers to provide curricula experiences which are genuinely educational. Our argument is that the tensions and contradictions inherent in the promises of infinite capital growth amongst other things also destabilize teachers' work upending the personal enrichment found in the educative experience for both classroom teachers and their students. With an emphasis on performance and product, the educational outcome is narrowed so that the purposes of learning connect to an imposed policy set-up which fuses aspects of (1) a global economic

market and concomitant risks with (2) a pedagogic approach that dispenses with the imperatives, freedoms and science that is expected of an autonomous teaching profession.

In revisiting core concepts germane to both education and democracy (e.g. freedom, autonomy, growth, knowledge, practice and experience), this book will explore the contemporary economic relations and structures of power and control coursing through the field of education to understand their effects on the nature of the educational experience. Importantly, current policy motivations reinforcing an emphasis on implementation of "scientific" evidence as a core aim of educational practice, including in the subsequent evaluation of pedagogies, are about formation of process and inculcation of presupposition curtailing the deliberative educative role of the classroom teacher. Consequently, the book will aim to articulate an alternative view of a "science of education" to reinvigorate an epistemology of education which is democratic and progressive in scope, favouring a critical re-construction of some of the existing activities and needs of an educational experience with a critical inquiry orientation. An important component to this end is making the case for the inclusion of the sociological, philosophical, moral and political in considerations of educational matters. On this we take our cue from Dewey (1985, p. 338) in his most well-known book, *Democracy and Education*, where he argued that "philosophy may even be defined *as the general theory of education* [original emphasis]". Importantly, while identifying the epistemology of education as being largely philosophical rather than technicist or scientific, he makes this claim after establishing the backdrop that "[t]he concept of education as a social process and function has no definite meaning until we define the kind of society we have in mind" (Dewey 1985, p. 103). Clearly for Dewey, the sort of society he aspired towards was a democratic one, and over a century after publishing this, we, along with several contemporary education researchers (e.g. Carr and Hartnett 1996; Gutman 1999; Raiker and Rautiainen 2017; Schostack and Goodson 2020), also fully embrace this same aspiration, especially as many of us are observing that democracy is on the decline.

This book begins with the political and economic ramifications of the policy impetus for a "science of education" and what this means for classroom teachers, their teaching practices and the field of education. In a critical exploration of current research and policy articulations of the purposes of education, with special attention given to Australia, the UK and the USA, the book delineates the evaluative mechanisms involved in the strategic science as method adoption of accountability, competitiveness and test-driven criteria used in major education policy. This shift towards the practical delimits the theorization of education and thus of the epistemology of education itself, re-enforcing the teacher as technician and transmitter of knowledge archetype. In addition, the book argues for a deliberate insertion of the theoretical in education and is against the contemporary unquestioning advocacy that often accompanies a narrowly defined utilitarian master narrative of a science of education, made conspicuous by the prevalent markers of the effectiveness research literature (i.e. models of performance/effectiveness/quality/instruction and so on).

The book is unique in its conceptual and theoretical framing in two ways. First, it brings together the disciplines of sociology and philosophy by drawing on the theoretical insights of Michel Foucault, Pierre Bourdieu and John Dewey. All three are interested in forms of power and control and their relationship to democracy and in questions of practice and morality. Whilst Foucault cuts through the power dynamics which operationalize the discursive dimensions inherent in agents' actions and practices, Bourdieu helps identify the power differentials in forms and structures of capital and rejects the supposed neutrality of the scientific process. Second, the work of Dewey is about harnessing the democratic spirit in existing power relations giving meaningful expression to the inequities inherent in economic, cultural and social capitals by emphasizing the inclusive and empowering nature of education through critique. In this way, the book harnesses critique as the engagement between Deweyan educational theory and the sociological thinking of Foucault and Bourdieu. It postulates on what a democratic epistemology of education may resemble, by pursuing a critique and a re-evaluation of the "science of education" in contemporary times.

An education policy obsession and the attack on progressivism

The various crises in contemporary education are an amalgam of how the modern political economy draws upon science as a strategic accountability tool for initiating and maintaining productivity via efficiency. These are, if anything, "manufactured" economic crises which are ideological in scope, and we contend that the social and educational complexities can only be properly understood and attended to through the "repositivization" (see Lather 2006) offered by "strong science", that is, the field specific economy of practice/s which are formalized and officially recognized for their predictive and evaluative powers. Education systems are often steered in specific directions where the promise of prosperity by the political/economic neo-liberal "class project" (Harvey 2020, p. 14) has provided the tempting talk around how if only our training institutions, universities and schools were of better quality and more efficient we would be better placed in terms of "pedagogically refashioning ourselves" (Blacker 2013, p. 1) to meet future economic and other challenges.

> Due to structural features of capitalism, this promise has been *decisively* [emphasis original] broken; there is no going back. Recapturing material prosperity via educational endeavour is simply not possible, even for those of the erstwhile middle classes of the industrialized world.
>
> (Blacker 2013, p. 1)

Be that as it may, the dominant crisis rhetoric of "school failure" and economic un-competitiveness (see Lipman 2013) continues unabated. It manifests as a type of repetitive cycle which envelops society's struggles as part of a systemic whole linked to the processes of capital accumulation. This implies structural

dysfunction at all levels; in modes of production, distribution and consumption. Michael Apple puts it this way.

> As a mode of production attempts to reproduce the conditions of its own existence, "it" creates antagonisms and contradictions in other spheres. As groups of people struggle over issues of gender, race, and class in each of these spheres, the entire social process, including "the economy," is also affected. The struggles and the terrain on which they are carried out are recast.
>
> (Apple 1995, p. 2)

The great dislocation experienced in the field of education as in other fields is then a perpetual perception of truncated progress and a general sense of uncertainty and precariousness. Coherence and the search for definitive answers to an otherwise general unease about educational and economic enhancement are given sustenance by the invigorations of pure "science" and the "methodological reductionism in neo-liberal policy discourse" (Lather 2006, p. 784).

The supposed certainty bestowed by science on the field of education in order to "strengthen" it is meant to re-dress the ambiguities and in-exactitudes found in theorizing "the social". Whilst education deals with various aspects of social class, gender, culture and race/ethnicity, it does so in keeping with questions surrounding the relationship between schools and society more generally. This means engaging in depth with the foundations of education mentioned earlier as a distinct domain of knowledge rather than the simplistic and slippery point-blank representations inherent in schools of thought such as behaviourism, economics/ finance or a naïve cognitivism. The qualitative socio-epistemic theorization and subsequent analysis of a "science of education" are about making sense of the various strands that dominate and influence the complex nature of its construction. An important constituent embedded within schooling is the idea borrowed from Bourdieu and Passeron (1990) that the pedagogic relationship (and so education more generally) is but "a simple relation of communication" (p. 71) which can be measured for its efficiency. This, however, is not the full story as Bourdieu and Passeron are quick to highlight in that "in order to escape the illusion inherent in a strictly functionalist analysis of the educational system, we must reinsert the state of the system" including "the history of its transformations" (Bourdieu and Passeron 1990, p. 90). In other words, focusing our attention on the socio-economic and other influences outside of the immediate school experience which a pure "science of education" is loath to contemplate.

Still, this is only one part of the argument being made by us in this book. In addition to the intrusive hegemonic pure objectivism of the "scientific" in education as an important cog in the re-shaping of the field for renewed economic purposes is the neo-liberal capitalist attack on public education. This is literally an "attack" (Giroux 2014) which in some ways draws upon various elements of modernity – the belief in science and a commitment to technological progress – as one sure way to maintain power and control over the field

of education. It utilizes the political and economic as a method of controlling supply conditions, especially of labour power legitimizing enhanced levels of competition transforming how we think about and live within our economic (national and individual) situation. The labour of most concern to us is that of teaching. Back in his own time, Dewey (1985, pp. 115–116) identified that the corporate agenda of colonizing governments "distrusts" the experience and intelligence of teachers, and observed the "vice of externally imposed ends" upon teachers "from superior authorities" of whom he warns "[e]ducators have to be on their guard". This controlling of teachers' work by various authorities has been recognized by many, including Biesta (2017) who made the case that teaching now needs to be "rediscovered". At the heart of neo-liberal thinking is that it promotes an entrepreneurial individualism espousing personal responsibility and continuous self-improvement as a unique form of self-reliance and emancipation from state control, the latter without any link to a progressive economic Keynesianism or sense of community attachment contributing to a broader social "common good". It removes one important aspect of a Deweyan conception of progressivism which is to conceptualize the individual as primarily a social being. Dewey's concept of progressivism seeks to rein in an unfettered corporate capitalism and "lost" individualism (Dewey 1988) which we argue dominates and, what is more, legitimates a contemporary performance-oriented competitive system of education for purely economic profit-seeking ends.

By way of explanation, an important Deweyan precept and something that is central to our argument in this book is the commitment to co-operation that progressivist democratic sentiments engender. Education, in Dewey's view and in ours, is at the heart of this endeavour and it is inescapably connected with democracy as both a political and moral way of living. While we acknowledge that it is important to recognize the individual as a social being (Webster 2021), we argue a contradistinction to modern corporate capitalism's individualist competitive ethic which has infiltrated all aspects of education. Indeed, Dewey (1988, p. 55) laments that this reductive form of individualism within a corporate paradigm is a most "serious and fundamental defect of our civilization". To this, he calls for a "new individualism" in which individuals are thoroughly integrated within themselves *and* simultaneously are thoroughly convinced, desirous of, and committed to the common good of the social associations in which s/he finds her/himself. An important and no less significant aim in this regard is hopefully contributing to reinvigorating aspects of the progressivist democratic tradition in education. One helpful way of doing this we believe is to maintain the spotlight upon the relentless commodification of education which an unrelenting hyper-competitive economism continues to do. It does this by way of tethering the field of education to the economic market mechanisms which took root in the 1980s/1990s throughout the Anglo-American capitalist west which continues to this day under the guise of "globalization". Consequently politics, especially the politics of the nation-state, have come to play second fiddle to the economic agenda of the globalists.

Simon Marginson has characterized the concomitant decline (crisis?) in the democratic tradition in education as "certainly a malaise" (2006, p. 206). One of the major reasons for this, according to Marginson, is the rise of globalization "which tends to undermine all political agendas constructed within national political frameworks, including movements for democratic education, unless and until such agendas are reworked to fit a more global context" (2006, p. 207). The central economic driver in this is competition. Marginson again on this suggests that it is competition "between students, between teachers, between schools, between types of school, between school districts" that acts as the "central organizing principle of human relations" (2006, p. 209). The effects of competition are profound.

> Competition between individuals fragments the potential for democratic school communities: parents and students seek fulfillment not through forging common institutions but through "kicking ass." Competition among schools stymies the potential for system-wide policies designed to equalize opportunities. A world order shaped by competition asserts the fundamentalist interests of one nation against another and valorizes every reduction of the conditions of life in the name of "global competitiveness." Competition in education shapes human nature to fit itself. We will need to jettison universal competition – and the barren assumption that the war of all against all is the driver of human progress – if we want to advance democracy.
>
> (Marginson 2006, p. 219)

More recently Marginson (2016) has observed that the impact on education especially on higher education is demonstrated through globalization, massification and marketization. He identifies that all three of these tendencies actively work against the common good. This is where the Deweyan challenge given to us all, and especially to classroom teachers, is important. Individuals must actively and critically decide for themselves and *with* each other, if what they do serves the aim/s of a commonly pursued "democracy" or the interests of dominant profit-seeking players such as corporations or particular wealthy individuals (see Dewey 1976). In short, rather than have our politics serve economics, as per neo-liberal globalization, the public good can only be pursued when economics is subservient to and harnessed by a politics in which individuals actively participate in deciding how society ought to be arranged and how it ought to function.

Although Dewey passed away in 1952 we, along with many other scholars (e.g. Cunningham and Heilbronn 2016; Higgins and Coffield 2016; Pring 2007), contend that his works continue to offer valuable insights for understanding our contemporary conditions and possibilities. Dewey was well aware of the growing power of the "captains" of industry and corporations of his day – what we nowadays understand as the neo-liberal elites – and was a great advocate for the public to be willing and able to contest for the continued democratization of our societies, which even in his time he acknowledged would need to be "radical" in order to be effective. Significantly, he argued that democracy was not restricted

to particular structures and functions within society. Being democratic refers to a way of living which is inherently social and moral (Dewey 1985). He was keenly aware of the growing totalitarian nature of the global corporate agenda which seeks to seduce our desires and aspirations to consumption, compliance and self-interest, and so he pursued a response which emphasizes the importance of individuals being educated and being scientific. This was at odds with his contemporary Edward Thorndike, who sought to literally control teachers and their work through his own "scientific" (i.e. behaviouristic and statistical) approach. We therefore consider that our book is a contribution which offers clarity to this ongoing conflict between those who seek to control the identity, agency and work of teachers and those who seek to emancipate them.

The epistemological development of education

An important missing discussion in the contemporary "audit-style" conceptualization of education for profit-seeking ends is epistemology. This is not to say all forms of epistemology, only an epistemology and theorization of knowledge which are thought to lack some form of "quality control", meaning the "randomized comparisons" of experimentally "tested" field interventions. In other words, an epistemological dominance which favours the application of structured experimentation and measurement as the logic of action in the resolution of complex educational matters. Our use of the term epistemology concerns the theorization of knowledge about educational matters which reflects problematizing both educational questions and educational *concerns*. Central to this is inquiry into the nature of representation and the "agreed meanings" surrounding how we should think, talk about and research educational problems. The field of education cannot escape the dominant power narratives of fields such as economics and politics. Indeed it is captured by them either in terms associated with its evaluation against "standards" or by the particular agenda/s set out for it, for example, promoting and preparing a skilled workforce. To this end, education is now conceptualized in action-oriented terms serving usually a particular instrumental or vocational purpose. Some reference to the etymology of epistemology itself is thought helpful at this point to open up its reconceptualization.

The term epistemology, which is often understood to mean knowledge and/or theory, has its roots in the Greek *epistêmê* and as such, was originally interchangeable with *technê* (from which we have the term "technology") and which meant knowledge *and craft*. In ancient Greek, we can appreciate that theoretical knowledge and practical craftwork were present *together*. This is in contrast to the theory/practice dichotomy we have inherited today, where often there is the assumption that theory must be learned first, and second, this is to be merely "applied" in a practical sense. This can sometimes be understood in an industrial scene where factory workers simply apply skills within restricted parameters to the overall process of production, where knowledge of the complete product and its overall purposes do not need to be known. What has been lost is the sense that theoretical knowledge was an integral aspect of the wisdom of the

craftsperson who practiced his/her craft with understanding rather than uncritically apply memorized procedures and processes. The re-emergence of the term *praxis*, especially amongst critical pedagogues, has retrieved some of this interconnection. Heidegger (1977) reports that in the fine arts *technê* could also be understood as *poiēsis* (from which we have "poetry"). Therefore, we can enrich our understanding of the knowledgeable craftsperson as also one who created or crafted rather than simply produced. Drawing upon Aristotle, we could also then make further contrast to a factory worker with the ancient craftsperson who was also expected to be virtuous as a human being. One way of appreciating this is that when one created an item, one ought to *desire* that it be of the best quality that one can produce in the given context.

The overlapping of so many terms in ancient Greek is explained by Gadamer (1999) as being reflective of the society of that time which was characterized by holistic unity. Religion, ethics, virtue, wisdom, purpose and activities were all understood to be interconnected with each another. A major feature was the *logos* – the reason that was evident through unity of *purpose* which was always a shared purpose. Such unity involving purpose and virtue of ancient Greek culture has been lost through the Roman interpretation of such culture. This reinterpretation of the Greek through the conquering paradigm of the Romans which demanded sacrifice of the individual for the survival of the empire, has been reported on by Heidegger, Foucault, Gadamer and many others, who conclude that the West has inherited the Roman interpretation of the ancient Greeks rather than the Greek culture itself. Of significance is the loss of the unity of purpose/logos being embodied in virtuous and autonomous individuals who were somewhat democratic and therefore equal with one another, was replaced with reified and specialized understandings which lent themselves to the stability of the Republic and later the Empire. This significantly affected how education was understood as summarized by Spanos (1993, p. 127) who states:

> The end sought by the Roman *stadium humanitatis* in reducing the Greek *paideia* – the instigation of originative thinking – to *erudite et institution in bonus artes* (scholarship and training in good training) was the cultivation of a disciplined, loyal, and predictable citizenry (*Homo humanus*) to secure the stability of the metropolis and extend its hegemony over *Homo barbarous* and "barbarian" lands.
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> [italics original]

While Rome may have retained an emphasis of the political over the economic, it was nevertheless acutely adept at maintaining and extending its influence and raw power, where the shift in the epistemology of education from the Greek focus on individual virtue in a socially democratic context was redirected towards disciplined obedience in service of the State. While this shift was too early to involve any "scientific" approaches, it nevertheless lent itself towards a commitment to improved efficiency of the existing system rather than any critical disposition to consider others in terms of socially organizing society. The focus of education

therefore moved from having the freedom of thought and the autonomy of expert wisdom to create possibilities deemed good by the individual, to simply knowing the existing order and one's place within it, and how to apply the required activities assigned to one's role. Thus, our epistemology of education today has inherited a loss of a holistic rationale or logos which normalizes contesting debates in any form of agora over the purposes of education and what it might mean to be an educated person. Educational research has been drawn into this shift as well. The particular traditions of educational research have been used to provide comprehensive but static explanation of issues and topics of interest, and often not without criticism.

> The criticisms are of different kinds. First, research does not provide answers to the questions Government asks in order to decide between alternative policies on "what works" (for example, on how to prepare a better skilled workforce to meet industrial needs). Second, research does not help teachers in their professional practice (for example, in adopting the most appropriate teaching methods, let us say, in the teaching of mathematics in the junior school). Third, research is fragmented, that is, lots of bits and pieces which, though often addressing similar questions, start from different positions or use different samples, not creating a coherent and reliable basis for practice or policy. Fourth, where there is this body of knowledge, it is not synthesised in a way which could relate to teachers, administrators and politicians. Fifth, research is often tendentious, politically motivated, ideologically biased, as reflected in research on the effects of social class on school performance.
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> (Pring 2019, p. 113)

In line with such criticism is the more recent policy-related emphasis for education research containing testable hypotheses about what works and what doesn't. This invariably involves the methodological representations of a pure "scientific" approach to inquiry which favours the technical and is generally perceived to offer a common sense and practical way out of the complex dilemmas of practice. Indeed many educational concerns are often reduced to amoral and apolitical challenges and problems which need to be solved (Schostack and Goodson 2020). It culminates we say in a "science of education" model of so-called "best practice/s" which seemingly comprised incontestable theoretical and practical stabilities with the power to not only plan for but overcome emerging problems of inefficiencies.

This type of "staged" performance-oriented scenario distorts the educational vista screening the qualitative richness found within "the complex and context-specific processes of teaching and learning that occur in classrooms" (Martin and Kamberelis 2013, p. 668). There is instead the re-orientation of education towards economic functions serving purely vocational purposes. The potential then in simplistic representations of teachers' work particularly around the classroom exchange is great. This is not to suggest that the pure objectivist statistical representations and meta-analyses on offer cannot say anything about

education, they do, but the *p* value, regression scatterplot and randomized field trial fall short when searching for "more dynamic, historic, contingent, and situated understandings of complex human interactions, events, and institutions" (Martin and Kamberelis 2013, p. 669). As such the "in-the-moment" statistical numeric masks or misses altogether the differentiations involved in the contingent and unpredictable. This is because classroom activity is immersed in the heterogeneous networks of people and things which characterize the dynamics of educational practice. The dynamics we are referring to are the myriad of second-by-second, minute-by-minute relational transactional exchanges in classrooms that when performed and taken as a "system" contribute to and mark out the interacting components involved. In other words, continuity as opposed to unattached constancy.

Temporal complexity is along these lines part and parcel of the classroom interactions at work here. The field of education as with all fields "has its own synchrony – its own rhythm and pace" (Atkinson 2019, p. 955). The school year for instance is invariably segmented, cut into terms or semesters and the school day into blocks of time. Similarly the curriculum into specific domains or disciplines of knowledge. This places limits on the tempo of learning boxing it into a linear timescale which may suit some students although not all as there is no room for the non-linear and recursive. Time as Compton-Lilly argues "is generally treated as a backdrop to experience and rarely contemplated as a significant dimension that contributes to how people make sense of themselves, their experiences, and their worlds" (2016, p. 576). In the field of education, time is generally viewed in resource-specific terms where "more time spent in class means more learning". This simplistic view overlooks the daily decisions and struggles of persons engaged within a field such as education the latter imbued with its own set of stakes and doxa (i.e. "ways of knowing and doing").

> In order to recognize how students, educators, and researchers exist within time, we must move beyond simple equations that associate more time with increased learning. If we accept the premise that people make sense of their lives within and across time, we begin to acknowledge the importance of not just the here and now, but of considering children's longitudinal experiences in school in terms of educational policies, practices, and research.
>
> (Compton-Lilly 2016, p. 590)

This is to say that we begin the process of understanding education as a specific type of epistemological activity which questions dominant linear representations of knowledge so that we think about it in terms of "engagement and response" (Osberg, Biesta and Cilliers 2008, p. 213) and not in terms of "representing the real" (Osberg, Biesta and Cilliers 2008, p. 214) as though the latter is "out there" waiting for us to discover through some form of Hegelian dialectic.

To this end, we argue that the purely "scientific" conception of educational matters mis-recognizes and moreover fails to capture the exigencies of classroom-based practice and the educational world as it really is. We propose that

meaningful understanding of education can only be said to truly occur if there is attention given to another more complex epistemology involved in the interactions of which it is composed. This is to recognize that education has sociological, philosophical and political foundations which require understanding before declaring knowledge of something, especially if that knowledge "stands for something in the world 'out there', and therefore is a representation" (Osberg, Biesta and Cilliers 2008, p. 216) declaring some supposed educational truth. In short, the epistemological development of education calls for broad-based sociological, philosophical and political considerations which are dynamic. Unlike the Hegelian dialectic which offers stability through a synthesis, we contend that the epistemology of genuine education is characterized by ongoing experiences of continuity without any final synthesis, end point or completion. Education is dependent on autonomous – or authentic – individual teachers and educators working together scientifically, and who are imbued with clear philosophical and sociological concerns which reveal their identities as active political, moral and scientific actors who are constantly fine-tuning their epistemology of education. We contend that this is especially important if, as a community, we are to conduct education that is to be worthy of democracy.

Overview of chapters

The main argument in chapter 2 is about the application of the purely "scientific" to matters of educational importance illustrating that the powers which operate in and across the field of education tend to represent classroom teaching in technicist ways. The chapter presents a critique of the subjectivizing school-system reform discourse which has over time solely focused on measurement as the only way to evaluate educational progress. The critique is framed within a conceptualization of power with reference to the work of Michel Foucault and Pierre Bourdieu. It juxtaposes the scientific methodologies at work in the evaluation of education against this critique highlighting the dominance of reductionist "scientific" forms of inquiry and their tendency to elide broader considerations of practice. This has the effect of distracting educators' attention from many of the pressing problems which influence educational outcomes culminating instead in a fake debate which centres on more accountability to make things right.

Chapter 3 is the first of two empirical chapters. It deals with the political and economic assumptions coursing through contemporary education policy-making. The chapter draws specifically on the Bourdieusian notion of "doxa" to focus on the presuppositions underlying major education policy rhetoric across the USA, the UK and Australia, which mirrors a scientific "what works" discursive mode particularly about the evaluation of a teacher's classroom performance. The connection between the presuppositions of contemporary economic thinking and the scientific "what works" approach in education including how the field evaluates teacher performance is manifest in the power of generalization. The field of pure orthodox economics is interested in utility maximization. Science is interested

in minimizing uncertainty and making "hard predictions". Both elements taken together mean a methodological style of inquiry which limits how we think about the field of education. This particular stylistic representation has had major ramifications in the field of education where for example teachers' work becomes increasingly viewed in economistic efficiency terms and less concern given "for what might be true, just or beautiful" (Webster 2017, p. 335). The chapter also draws on *field, habitus* and *practice*, core Bourdieusian concepts to understand the complex interconnections at work in the field of education especially around the evaluation of teachers' work. In doing this, the chapter connects aspects of the "what works" narrative underlying major education policy rhetoric with the Foucauldian concept of "governmentality". This is to highlight how the policy construction of teacher evaluation is about an accountability framework of productivity, effectiveness and quality conceptualizing teachers' work in input–output terms. The empirical element of the chapter is found in a critical analysis of a major US-related education policy, the Obama administration's *A Race to the Top* (RttT).

Chapter 4 is the second empirical chapter. It starts with the Bourdieusian notion of "hysteresis" to argue that the catalyst for change in the field of education is found in the persistent fear of economic collapse that manifests as a series of transformational flow-on effects with consequences for classroom teachers. State intervention in the form of major structural reforms shape the field of education through the implementation and imposition of "doxa" and ways of doing. The resultant shock creates a mismatch between the Deweyan precept of the educative learning experience, which caters to a classroom teacher's autonomy via their attitudes, practice/s and disposition/s (habitus), and the governmentalization of the discourse/s of standardization. The chapter will draw upon classroom teacher interviews completed with two experienced secondary school teachers from within the state of Victoria Australia. It will seek to explicate the operationalization of teacher agency in an education policy environment focused on student learning growth and achievement, the latter defined narrowly as forms of knowledge, skills and a mindset that accepts the uncertainties of contemporary labour markets.

Chapter 5 will argue that a failure on the part of the schooling system and education policy in particular to manage impeding external influences detracts from the educative experience and what is more is a key determiner in eroding the educative effectiveness of classroom teachers. In considering the increasing technization of teaching, the chapter engages with the work of John Dewey to suggest that audits of classroom performance and practice divert attention from finer aspects of pedagogy involving the embodiment of critical consciousness through relational experiences between teachers, students and the world. An important aim of this chapter is to re-engage with the complexities of learning and educational aspects of "becoming" highlighting the contestable nature of knowledge. This is to question the role of classroom teachers in the contemporary school-system and to identify the specific elements which make the teaching profession unique.

Chapter 6 grapples with the education as either art or science divides to explore specific teacher characteristics directly associated with enhanced learning outcomes to question the development of a teacher, which is closely aligned with the hallmarks of performativity (Ball 2003) and effectiveness. This is to suggest that important teacher characteristics which contribute to student achievement such as creativity, curiosity, collaboration, critical thinking and so on whilst arguably evident in teacher practice/s across most education jurisdictions are impeded by the at times inflexibilities of current curriculum and assessment reforms with implications for teacher identity. The chapter moves then to argue that this has consequences for the type of teacher one becomes.

Chapter 7 explores the concept of student growth. In doing so, it engages with the Deweyan conception and meaning of growth asserting the intrinsic worth and value in intelligence, especially social intelligence with an eye to that which is demonstrably democratic in nature and form. In arguing this, the chapter explores the notion of "authentic pedagogic practice" to suggest that there is a depth and scope to contemporary teaching and learning which is primarily existential and aesthetic but often missed by the constructed performativity mechanism of high-stakes testing. The key message of this chapter is that contemporary education policy has deliberately sidelined more authentic and holistic counter narratives and conceptions of learning growth characterized by the progressivist and critical fields of pedagogy.

Chapter 8 focuses on the novelty and creativity expected of classroom teachers as an accepted part of their approach to innovative pedagogic practice. The chapter grapples with an important assumption, teacher autonomy to argue that actual opportunities for classroom teachers to engage in genuine "scientifically informed" innovation in schools are limited. The need for innovative behaviour on the part of classroom teachers has probably never been higher, especially from an education policy-related sense. Nonetheless two key variables connected to teacher innovative behaviour, professional development and appropriate appraisal and evaluation systems of effectiveness and quality are often in competitive tension.

Chapter 9 draws together insights from our exploration of contemporary epistemologies and discourses of education which are predominantly "scientific" in nature and to offer an alternative approach which we characterize as democratic, scientific and authentic. We say this in that the democratic character we envisage is demonstrated by the equal opportunity and autonomy that *all* teachers have to be able to have a say in how their own professional identities are formed and enacted. This is so that the scientific aspect of their work occurs by way of teachers themselves taking action to actively experiment with the experiences that they believe enhances the educative value of an education for the students in their classrooms. The chapter articulates what a contemporary science of education should be comprised of and seek to achieve. It does this to highlight the importance and capacity of the classroom teacher as transformative intellectual rather than as mere technician.

Chapter 10 concludes the book by revisiting the major question that guided our inquiry into the "science of education". The chapter reinforces what we say a genuine democratic "science of education" looks like and the important contribution it makes towards an epistemology of education which is truly progressive and emancipatory.

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2 Foucault, Bourdieu and education

Introduction

To investigate how the epistemology of education has been contested at the political level, this chapter first illustrates how power courses through the field of education in general and also explores the notion of power from a Bourdieusian and Foucauldian standpoint. Second, the chapter interweaves critiques of school-system reform with an explication of the scientific methodologies used which emphasize their legitimacy through the accepted analytical neutrality of their supposed expertise. This twofold critique is about illustrating the sophisticated education policy "common sense" that accompanies performance measures and which of late, in nations such as the UK and Australia, aligns closely to a social justice agenda whilst emphasizing stronger commitments to standards in curriculum and teaching practice/s and other school-system compliance structures. In effect, this "common sense" narrative has adopted a scientific guise to wield as a form of power over the field and of how teachers do their work. It is manifest in the quantitative and statistical knowledge that "counts" as worthwhile about education so that "knowing" and understanding the field are only legitimate via this epistemology.

Power relations and schooling

Power and education are both contested terms (Kupfer 2015a) despite their interrelation.

> Studies explicitly analysing power in relation to education can be classified under four themes: knowledge, social inequality, empowerment, and policy.
>
> (Kupfer 2015a, p. 1)

Power in education can be thought about in terms of means and effects, that is, as "a property of *individual* persons, wielded *instrumentally* as a means to particular *intended* outcomes [emphasis original]" (Burbules 1986, p. 96), or relationally meaning there are aspects of autonomy – or agency – and dependence at work (see Burbules 1986). In the latter, conceptualization of power, that is,

the relational, or which Burbules (1986, p. 97) goes on to highlight, that "there is usually a tension between *compliance* and *resistance* [emphasis original]" which may be understood as how managerial power may be subverting a teacher's sense of agency. Whilst society is in general "riven with tensions" (Apple 1995, p. 5), so are schools. Michael Apple characterizes the tension and power dynamics in schools in terms of struggle, perpetual and all-encompassing, "where an ameliorative ideology and the immense problems educators already face leave little time for thinking seriously about the relationship between educational practices and discourse and the reproduction of inequality" (Apple 1995, p. 5) and consequently inadvertently they end up supporting the status quo. This sociological interpretation of power and schooling connects education with society and culture with power maintaining a symbolic but very real interconnection where schools operate to maintain and perpetuate the dominant advantaged order that privileges some whilst dis-empowering others. Pierre Bourdieu uses the concept of "symbolic violence" (see Swartz 2013) to help explain why the social hierarchies and domination which the education system engender is generally accepted by those who suffer from it.

> Education is one of the primary arenas where ideas are produced, taught, and acquired in societies. Consequently, if ideas, thoughts, models, theories, and worldviews are not independent of the thinkers' socio-economic position and develop strictly according to intrinsic aspects and the logic of the dominant class, educational institutions are restricted, conveying only special knowledge, views, ideas, and approaches.
>
> (Kupfer 2015b, p. 28)

Typical of this domination are the processes of knowledge reproduction (curriculum), forms of pedagogy (teaching) and evaluation (assessment) that exists in schools and to which teachers and administrators are held accountable. These are all founded on an "ensemble of power and control principles regulating or constraining what is selected as valid educational knowledge (curriculum), how it is taught/learned (sequenced and paced) and when learning is deemed to have happened (evaluation)" (Singh 2015, p. 367). The only way that the "special knowledge" of school is transmitted is if it is accepted or "declared general knowledge, masking its origin as knowledge of the dominant people" (Kupfer 2015b, p. 28). What is key to this dominating process is that the reproduction of knowledge receives far greater importance than the ontological growth of students' critical capacities for responsible knowing and evaluating various claims to knowledge.

Schooling and the social functions that occur by way of its inculcating processes sets about a series of legitimated imposed meanings and practices. In other words, the power invested in school and the education system is ideological in scope. This "symbolic violence" which is a "power that imposes meanings as legitimate by concealing the power relations that support its strength" (Kupfer 2015b, p. 30) are possible through a "particular type of autonomy" formed by a constructed "system of relations between the educational system and the

other sub-systems" (Bourdieu and Passeron 1990, p. 197). The power manifest in schooling is an expression of the social hierarchies evident in society, the latter also consecrating the content taught deemed necessary by virtue of importance and value, and how teachers see themselves as primarily "deliverers" of State-sanctioned content. But this too hinges on power relations which work to conceal dependence on the practices and ideology of the dominant. School knowledge

> [s]eems to be meaningful on its own, independent from the way it is created and presented, but it conceals the influence and extends the prestige of those in power because certain content is regarded as *true*,[emphasis original] without admitting questions about whether it always applies or how it came to be taught.
>
> (Kupfer 2015b, p. 30)

Teaching is implicated in this process of inculcation through pedagogic action (PA), the concept Bourdieu and Passeron (1990) used to describe the interactions which occur between "the teaching content and the teaching context, and are based on the dominant culture and the class specific culture of the students" (Kupfer 2015a, p. 31). PA is responsible for the ". . . misrecognition" (Bourdieu and Passeron 1990, p. 31) of knowledge creation and presentation which occurs through "the illusion that teaching content is purely subject-related and does not convey a certain perspective, a specific meaning" (Kupfer 2015, p. 32) and thus the work of teachers is presented as apolitical and amoral technicism. It is through PA which itself occurs in a broader context (social, economic, political and cultural) that the pedagogic work (PW) of schooling is realized.

The concept of PW implies "a process of inculcation which must last long enough to produce a durable training, i.e., a habitus" (Bourdieu and Passeron 1990, p. 31). By this Bourdieu and Passeron refer to teaching and its effects on students. Bourdieu and Passeron acknowledge that the family is involved in primary PW, whilst the school engages in secondary PW.

> Primary pedagogic work differs in families of different social classes, and when added to secondary pedagogic work at school, which enables middle- and upper-class children to meet demands but fails working-class children, pedagogic work establishes societal hierarchy.
>
> (Kupfer 2015b, p. 34)

Secondary PW is strongest when it aligns closely with the primary PW of the family. The functions of the education system through the work of schooling define and shape secondary PW. The authority vested in schooling reflects accepted tools of inculcation; national curricula, standardized testing and uniform teacher education. An important consideration in thinking about secondary PW is the extent to which it is involved in perpetuating disadvantage.

In Australia as well as in many other post-industrial nations such as the UK and the USA, the persistence of inequality in educational attainment related to social

origin is the subject of an ongoing debate about how education systems repro-
duce rather than alleviate social inequality (see Chesters 2019, p. 331). There
is strong evidence to suggest that family background, location, type of school
attended and student socio-economic status (SES) all correlate to educational
achievement and attainment (see Chesters 2019). This specific debate around the
pedagogic work of schooling strikes at the heart of the power relation and the
connection to education.

> Young people from disadvantaged families attending schools in which large
> proportions of the student population come from similarly disadvantaged
> backgrounds are less likely to achieve their academic potential than those
> attending schools in which large proportions of the student population come
> from advantaged families.
>
> (Chesters 2019, p. 332)

It is the PW of the education system and the imbalances found in society at large
that can account for these particular patterns in academic outcomes.

Pierre Bourdieu maintained that the education system through the actions
and effects of schooling reproduces "all the more perfectly the structure of the
distribution of cultural capital among classes" (Bourdieu 1973, p. 80). The cul-
tural and social reproduction at work in schooling gives the appearance that the
advantages of social hierarchies and often academic success and the "reproduc-
tion of these hierarchies appear to be based upon the hierarchy of 'gifts', merits,
or skills" (Bourdieu 1973, p. 84), in other words, successes at school are derived
through individual talent and merit – on the part of both students and teach-
ers. Links "between individual effort and desert mediated through education"
(Souto-Otero 2010, p. 399) are tenuous showing that there is more to educa-
tional achievement and attainment than simply ability or individual talent. The
recent educational era has witnessed a widening of educational participation espe-
cially in higher education in nations such as the UK, Australia and most nations of
the OECD (Schuller and Vincent-Lancrin 2009). Nonetheless students from less
privileged backgrounds are still under-represented and their schooling experi-
ences are adversely impacted by some of the negative effects of social class, gender
inequalities and dominant forms of academic literacy (see Burke 2005).

Foucault, Bourdieu and power

Power sources in schooling are evident in governance structures and the politi-
cal mechanisms which facilitate their operation. Disciplinary and symbolic tech-
niques of power are used in schooling as modes of governing, that is, regulation
and control. The work of Foucault and Bourdieu is relevant in providing a critical
exploration of how the disciplining and symbolic nature of power functions in
schooling. Foucault offers a relational conception of power so that we can ration-
alize its operation "in terms of ceaseless social struggles" (Cronin 1996, p. 56)
which occur "within everyday relations between people and institutions" (Mills

2003, p. 33). Foucault's work is concerned with the power relationships involved between social structures, institutions and the individual where primarily "the production of new forms of scientific knowledge concerning subjects" (Cronin 1996, p. 56) culminates in disciplinary effects. This means the introduction of a constructed series of methods and/or techniques which engender a range of relations to position people for particular ends. The production of specific "discourses of power" (Ball 2012, p. 4) through institutional processes to establish "something . . . as a fact or as true" (Mills 2003, p. 67) is an important disciplinary method. Scientific discourse for instance relies on selected and recognized definition arrived at through the set of methodological decisions and choices made by those who are the elites of the discipline. It binds one to a specific methodological point and paradigm (Kuhn 1970) of view which leads towards the "scientific" representation of knowledge. Power for Foucault "flows through architecture, organizational arrangements, professional expertise and knowledge, systems of classification and "dividing practices", therapeutic procedures and how it comes to be written onto bodies and into our conduct" (Ball 2012, p. 6). Power may prohibit but it may also be productive. This means that power can be contested as it is a "complex arrangement of social forces that are exercised" (Ball 2012, p. 30).

Bourdieu like Foucault is interested in forms of domination. That said, much of Foucault's work around the theorization of power is concerned with the domination that may occur via governance in particular how organized forms of governance through in the main discourse, regulate conduct of self – the governmentality referred to previously in chapter 2. Bourdieu's sociological thought zeroes in on the "more subtle and influential forms of power that operate particularly through the cultural resources and symbolic categories and classifications that interweave prevailing institutional arrangements into everyday life practices" (Swartz 2013, p. 4). Bourdieu offers up a theory of practice "in terms of the interaction between the *habitus* [emphasis original], the set of symbolically structured and socially inculcated dispositions of individual agents, and social *fields* [emphasis original] structured by symbolically mediated relations of domination" (Cronin 1996, p. 56). This in short is about power resources (capitals) and the field struggles over it. Bourdieu's "sociology sensitizes us to the more subtle and influential forms of power that operate through the cultural resources and symbolic categories and classifications that connect everyday life to prevailing structures of inequality" (Swartz 2013, p. 30). An important aspect of symbolic power for Bourdieu is in the tendency of power to dominate via a shaping of everyday behaviours, expectations, desires and beliefs. Symbolic power is a form of "systemic power embedded in the patterns of thought, basic assumptions, linguistic terms and categories and social relationships" (Swartz 2013, p. 31) of people. It enacts itself as people go about their everyday lives "though individuals are rarely aware of its influence" (Swartz 2013, p. 31), that is, it is misrecognized as the "dominated internalize their condition of domination as normal, inevitable, or natural" (Swartz 2013, p. 38) and even as a matter of common sense.

Schooling poses a unique opportunity to investigate power using Foucault and Bourdieu. In Foucauldian terms, the school enacts particular forms of power by way of "normative laws" – regulations and codes of conduct – for the express use on a population (students and classroom teachers). The disciplinary powers that course through schooling not only punish and discipline but also reward and produce. This can be accomplished through the governance arrangements and various techniques and "forms of veridiction" (Foucault 2010, p. 42) which also serve as bearers of knowledge about certainty. Students and classroom teachers are constituted as "knowable subjects" via observation, surveillance and testing, key elements of a "truth-telling" pragmatics which objectifies via a ". . . regime of truth" (Foucault 2008, p. 19) composed of the principles and rationalizations of the scientific method. This objectification is about producing an order of things, a scientifically oriented orthodoxy where the exercise of power guides "the possibility of conduct and putting in order the possible outcome" (Foucault 1982, p. 789). In other words, power when thinking about schooling has the capacity of producing reality and a sense of morality, where "doing the right thing" is understood as compliance to the authoritative norms because the education system is flush with a "range of ubiquitous and relatively mundane procedures and relays of power which manipulate space and time and produce and circulate knowledge" (Deakon 2005, p. 74). The evaluation of classroom teachers and their performance via scrutiny of their teaching practice/s is an example of how power can operate in an education system to define what "good" teaching entails. It is if anything about applying a process of scientific management of teaching practice as a reasonable way of maintaining control over classroom teachers.

The teacher subject as scrutinized technician – an exercise in "system" power

Constructing the contemporary classroom teacher, and in particular the "good" teacher, depends on representations of their work. This involves the scrutiny and documentation of their practice/s as "factual" accounts of their productivity, the latter expressed quantitatively as a measure of student achievement. An accounting of teacher practice and its relationship to student achievement through the "truth telling" power of measurement is a mechanism of subjection and subjectivation. This is because it positions and narrows the focus on teachers' work so that the question around their productivity is expressed both as a production of truth and dedication to be a morally "good" teacher who "does the *right* thing". The audit of teaching practice as an active performance-oriented classroom exchange between teacher and student is a process of producing knowledge and teacher identity. It generates a formal discourse that comprised particular rules and domains that classify and order. In this way, the work of teachers and their productivity are modified, and appropriated by the discourses of knowledge about their practice/s which counts as both truth and morally good.

The transformations associated with the school reforms and new management approaches of recent decades mark a shift in teacher subjectivity. Choice,

competition and an intrusive privatization (see Smyth 2002) serve as the defining frameworks around which teachers' work is discussed and assessed. Knowledge about the performance of teachers is served by a normalizing discourse meaning a scientific information-seeking set of procedures and technologies that is about the ratification and affirmation of a type of "good" classroom teacher conduct. This conduct is not about encompassing community expectations to determine the moral/ethical side of teachers' work but about teacher behaviour in terms of their teaching practice/s and how the latter has an effect on student achievement and how teachers then adopt this as the ethical/moral right thing to do. It is about moulding a particular type of classroom teacher subject through proscribed statements about how they should teach if they are to be regarded as "good". Implicit in the "professional knowledge" reflected in the statements of teacher standards are the "practices and dispositions that teachers are required to embody and enact throughout their careers" (Lewis, Savage and Holloway 2020, p. 751). An important aim of teacher standards is the emphasis on "a common, or *standardised*, [emphasis original] understanding and language of teaching" (Lewis, Savage and Holloway 2020, p. 752) which inevitably is narrow and often technicized. The organized and "truth-telling" discourse of teacher standards then is a technique of domination in that it permits the individualization of teachers' work and moral worth which acts as the foundational framework for professional accountability through governmentality.

Taylorism, the scientific management approach to production, represents the teacher-technician conceptualization of a teacher's work. Efficiency which is studied and enhanced through "scientific" methods based on measuring time-motion practices, and their application in how workers (classroom teachers) complete their tasks provides the basis for the evaluation and verification of the quality and/or effectiveness of teaching. A scientific management of such time-motion practices allows for quality assurance over teacher labour where control over curriculum delivery and assessment practices link with notions of teacher professionalism and standards. A reliance on the technical rationality embedded in scientific management guides the educational reforms of recent decades particularly with respect to the efficiency and quality of classroom teachers, as it is used to justify the fixing of perceived educational problems. Linearity, predictability and a uniform set of relations are assumed "where change can be predicted and control centrally maintained through simple cause and effect manipulations" (Bates 2013, p. 39) ignoring an accounting of the interconnections and processes of local human interactions.

The preferred tool of evaluation for assessing efficiency of classroom teachers as a data point entry is the education production function. Production functions which are used widely in the fields of economics and business are mathematical representations which relate the ratio of inputs to outputs where maximum output (i.e. yield) is a function of inputs (i.e. resources). The Cobb-Douglas production function is perhaps the most famous and well-known in that it describes the relationship over time between manufacturing output (yield) and the two basic inputs of labour and capital excluding other variables and assuming constancy

in process (see Humphrey 1997). The education production function "is a special case of the production function" (Griffen 2020, p. 3) in that inputs include although are not limited to the labour of teachers, the type of teaching strategies used, teacher quality, the nature and form of curriculum used, time spent on instruction and so on to produce a list of "best practices". Output is level of student achievement as a measure of education success and progress. Maximizing output, i.e., student achievement along these lines becomes an economic and productivity argument in that the production function identifies the key inputs needed to minimize the time spent teaching to optimize learning. Production functions have an established history in the field of education (see López 2007), their modern genesis emerging with the advent of the work of Coleman et al. (1966).

Production functions incorporate assumptions into their modelled representations. An obvious assumption is the holding of a particular variable or set of variables "constant". The artificial notion of "holding constant" in statistics is about calculating the change in one variable against another while holding all others steady or in equilibrium meaning that there is no change in their status. Education production functions in the extant research literature incorporate basic assumptions about inputs and outputs. Depending on the type of education production function study, the role and so inclusion of socio-economic and other contextual variables are often left out. In all cases, the determination of education production (i.e. educational progress) is reduced to a series of metrics (i.e. vector quantities) in the form of associations between inputs and outputs.

The education production function conceptualizes the calculation and control of teachers' work as a systems framework. It removes the complex particulars of difference favouring communication via measurement. As a form of metrological standardization, it masks "the vast technoscientific infrastructure" (Overwijk 2021, p. 131), which re-positions the field of education and the work of classroom teachers in cost benefit and input/output terms. Griffen (2020) has written about the policy influence of the education production function. He makes the point that economists and by extension the empirical approaches used in fields such as business and economics were very influential in shifting "thinking about education as a system of production" (p. 10) which then allowed for the widespread use of the education production function as the preferred tool of measurement in the evaluation of classroom teaching practice/s.

The methodological authority of "science"

While a social-efficiency approach has been applied to enhance education productivity and appears to be closer to the "truth" because it has cloaked itself with a "scientific" methodology, we consider it important to critically question this appeal it makes to science in more detail. Science for Pierre Bourdieu is useful in that he respects the approach to inquiry that "scientific practice" can achieve for human progress and freedom if done well and thoroughly. The importance of scientific inquiry for Bourdieu centres on a methodological practice which

challenges rather than accepts taken-for-granted assumptions. This is especially true about the sociological world where Bourdieu believed in using elements of scientific inquiry as the foundations for the scientific practice of sociology (see Bourdieu 1968). Whilst Bourdieu accepts a need for scientific rigour in terms which reflect a strategic approach to inquiry his use and advocacy of the "logic of science" is really about scientific practice as "an ongoing process of critical challenge of existing explanations, both lay and intellectual" (Swartz 2013, p. 156). In other words, the scientific method of inquiry moves beyond the decoding of accepted beliefs and practices. It is about the production of new knowledge the impact of which has the power to transform our views and thoughts about the world. The social effects of science were significant for Bourdieu because he saw the value in the power of scientific inquiry as "a debunking or disenchanting force" (Swartz 2013, p. 156) with a capacity for refuting accepted representations and the practices that constitute them of the world. In other words, Bourdieu believed that science and the practice/s that constitute its approach to inquiry contain a form of symbolic power attesting to a "scientific character" (Swartz 2013, p. 156), that is, a logic of practice that carries weight and has legitimacy.

Be that as it may, Bourdieu was also quite critical on occasions of the scientific field as a field of practice. His critique of it centres more on the practice of science within and as an intellectual field of influence with a disproportionate "kind of symbolic power that distinguishes it from all other cultural fields" (Swartz 2013, p. 161). Bourdieu claims that the scientific field is distinct from other fields in three different ways. First, the work that science does is reported to and relies upon a rarefied audience. Second, in its representation of the world, the scientific field tends to limit alternative conceptualizations of the "real" with researchers accepting what the field deems settled accounts of reality. Third, the scientific field perhaps like no other field requires a complete understanding and mastery by its practitioners of the techniques and processes inherent in the tools which establish "truth". Science like other fields is in a struggle for legitimation and intellectual acceptance. The complex nature of scientific research requires forms of discourse which encourage "a mode of understanding, discovery, and communication" (Swartz 1997, p. 252) that seeks to explain by being cognizant of and taking into account the process or method of research itself. In other words, Bourdieu believes that doing "good science" means more than simply the identification and examination of particular information or seeking closure through answers to research questions. Doing good science calls for a reflexive practice of scientific inquiry which means the researcher being aware of and controlling several contributing influences. The first of these has to do with the habitus which is the intrinsic cultural/social background of the researcher themselves, that is, their "values, dispositions, attitudes and perceptions" (Swartz 1997, p. 272), and what this means in terms of the object of inquiry. Second, doing good science necessitates a reflexive practice be adopted by the researcher that accounts for field positioning acknowledging that the work engaged in by the scientist is imbued with the struggles and interests which operate within the scientific field as a field of power and intellectual practice. The third aspect of reflexive practice for

doing good science relates to an examination of the epistemological and scientific claims of objectivity. The field of science is perhaps the most theoretically laden in that its objectivist vision only holds by virtue of an acceptance of the presuppositions which come with a pure objectivism.

Science and relevance to education

The work of Bourdieu in regard to scientific inquiry provides an opportunity to explore education as practice. Whilst his work in the field of education is extensive covering in particular class politics and problems of educational opportunity and inequality, Bourdieu's interest in developing a theory of practice/s in fields of power helps scrutinize and expose the qualitative complexities involved in practices such as teaching. This is achieved through an approach to inquiry which conceptualizes practice as part of a broader whole that is connected to dominant economic, cultural and political processes. In addition, Bourdieu's theorization of practice which is an analytical exposé of the concealed and unaccounted for exchanges between people and dominant socio-political and economic structures moves debate about the education system and teaching beyond the seemingly obvious and mechanical. The analysis of practice for Bourdieu requires a multi-faceted articulation of its progression in time because "practice is inseparable from temporality, not only because it is played out in time, but also because it plays strategically with time and especially with tempo" (Bourdieu 1990, p. 81). Science, on the other hand, and the pure objectivism associated with de-temporalized scientific inquiry ignore not only the interplay of relational exchange/s, that is, the discourse/s and thoughts which compose everyday life, they also remove an attachment to the influence any "human desires, human agency, and humanly created institutions and artifacts" (Olsen 2015, p. x) have over knowledge and how it is applied to matters of interest in the social sciences.

Research then on educational matters for Bourdieu should reflect an approach to inquiry that studies the field of education as a science of practice. In part, this is because of the economy of logic that characterizes much of what is a science of practice which, when it comes to an examination of problems in the field of education, sets limits and boundaries around inquiry. The direct and immanently relevant is given prominence in as much as scientific efficacy allows distorting what is the object of inquiry through the privileged bestowed on a pre-conceived view of the world. But a specific view of the world requires a bank of stored creations – language, a methodology, methods, symbols, instruments and so on – "inscribed both in reality and in people's minds" (Bourdieu 2014, p. 123) which when expressed about a particular problem, issue or phenomenon dominates by crowding out a more nuanced understanding of it. In this way, a substantialist treatment of a science of education and the practices that constitute it ignores the particular logics of practice which are the empirical mechanisms used to concoct a specific view of the world. The particular and dominant logics of practice used to inquire into and report on the field and science of education contain an evaluation

and assessment bias which acts as a form of "symbolic power" (Bourdieu 1979, p. 78) that in education engenders responses intended to transform.

The transformation sought reflects a narrowing of the gap "between research, policy, and practice" (Biesta 2007, p. 2), the aim being the synthesis of research findings for easier accessibility among stakeholders.

> It also includes attempts to centrally set the agenda for educational research, both with respect to its contents and its methodology. Regarding the latter, there is a strong push for experimental research that, according to proponents of evidence-based education, is the only method capable of providing secure evidence about "what works".
>
> (Biesta 2007, pp. 2–3)

An important part of this strategic move by science for field domination in education is the use of statistical comparison in not only depicting a state of educational affairs but also managing to spark and then shape education debate and practice by sidelining educator voice (see Willis and Call 2020). There is a dependence here on the scientificity of experimentation often, although not always, exclusively via collection of large datasets as part of randomized control trials (RCTs). Experimental designs of this type are known generally as the "gold standard" in evidence-based research and policy for their capacity in causal determinations between selected interventions and direct outcomes. Their "great strength . . . is that through random allocation to treatment and control groups many confounding variables can be controlled" (Hammersley 2008, p. 3). Nonetheless RCTs

> are imbued with beliefs about the nature of the research "problem", how it can be researched, what will count as data and so on. They are methods for producing knowledge based on what is deemed to count as knowledge. They are designed to produce certain knowledge outcomes (e.g., related to "interventions"), albeit there can be some variation in these outcomes.
>
> (Gale 2017, p. 211)

The problem then around evaluation and assessment for evidence-based decision-making particularly of the form that uses and relies on RCTs and for fields of power such as education is that of value and validity (Hammersley 2008).

When Pierre Bourdieu uses the concept of "symbolic power" mentioned earlier he is referring to the type of power and its various instruments of knowledge and systems which "construct reality" and "which tends to establish a gnoseological order, the immediate meaning (sens) of the world (particularly of the social world)" (Bourdieu 1979, p. 79). This power is total in that it communicates actions which serve the particular interests vested with system authority. It does this by legitimizing the interests of the dominant group as universal interests, "common to the whole group" (Bourdieu 1979, p. 79) meaning that the problem/issue at hand not only matters to all but should also be treated

and subsequently fixed in a manner outlined by a dominant authority. Any basis for change hinges on the irrefutable evidence generated via the instruments and methods of knowledge, the "structuring structures" (Bourdieu 1979, p. 78) which are communicated as self-evident truths. This matters in fields such as education because scientific inquiry not only comes with symbolic power but also contains codes of authority which are the frameworks imposed by particular logics of practice and empirical mechanisms used to concoct a specific view of the world.

The fields of economics and business, for example, along with their methods and ways of knowing exert influence over fields such as education because the former's approach to knowing seemingly captures the vagaries of complex systems and practices. Economics and business do this by assuming that the education system exists in a perfect state of equilibrium meaning that the exchanges between students and teachers including all that is involved in the exchanges (type of curriculum, resources of all kinds both of personnel and financial, teaching and assessment strategies used, backgrounds and beliefs of those involved, etc.), can be "frozen", caught in a replicable frame to be analysed. The econometric or psychometric researcher brings their "tools" to the data, tools which impose strict limitations on what is and isn't data, along with no regard for or caveats acknowledging or explaining the pre-existing "scientific" hypotheses used to develop their tools of analysis. The scientific practice used here is one that imposes a constructed abstraction on the work of education substituting a purely theoretical representation of the world for its practical and real world in time equivalent. A significant implication for the field of education is an intrusive "empirical" evaluation and assessment that aims at the production of information about performance. Stephen Ball (2003) has comprehensively studied this turn to "performativity" (p. 215) in education where the performance of "educational institutions, teachers and students are compared, regulated and judged" (Appel 2020, p. 302). The nature of performativity in education is defined by Ball as "a technology, a culture and a mode of regulation that employs judgements, comparisons and displays as means of incentive, control, attrition and change – based on rewards and sanctions (both material and symbolic)" (p. 216). A major consequence of performativity in education is a fabricated portrayal "of the currency and substance of performance" (Ball 2003, p. 224) as teachers and school leaders sense an encroaching "lack of trust" in their work "which can lead to dishonesty and inauthenticity" (Appel 2020, p. 303).

The distraction/s of a fake debate

The current "empirical" emphasis on evaluation and assessment in education (see Hardy and Boyle 2011) has generated a fake debate which distracts educators' attention from the educative nature of their work towards issues of measurement and efficiency. With educator attention focused on measurement, accountability and issues of "excellence", "quality", "best practices" and

"choice" – the hallmarks of a performativity culture in education – less emphasis is given to engaging in how the field of education should respond to some of the problems of our current era; economic stagnation (low productivity), rising inequality, climate change, automation, AI and so on (see Skidelsky 2020). Educator's attention in current times is focused squarely on meeting compliance demands around the "development and delivery of policy and practice" (Sachs 2016, p. 421) valuing the teacher only as the transmitter of knowledge. Such an approach cuts out or at best limits practitioner inquiry, makes nothing of educator experience and limits the opportunity for the production and airing of new knowledge. The Organisation for Economic Co-Operation and Development (OECD) reports that the increasing emphasis on evaluation and assessment in the field of education and by extension teacher education is down to the following:

- An increased demand for effectiveness, equity and quality in education to meet economic and social challenges.
- A trend in education towards greater school autonomy, which is fuelling a need to monitor how schools are doing.
- Improvements in information technology, which allow for the development of both large-scale and individualized student assessment and facilitate the sharing and management of data.
- Greater reliance on evaluation results for evidence-based decision-making (OECD 2013, p. 13).

The reasons given by the OECD for the emphasis on evaluation and assessment in fields such as education/teacher education reinforce a rational technical understanding of educational matters for their re-thinking and re-framing (see Grek 2017). This "technization" (Grek 2017, p. 297) of education policy direction gives credence to Governance, Procedures, Reporting and Use of results, Capacity and Implementation (see OECD 2013). In other words, an emphasis on accountability.

Accountability enjoys broad political support from across the right and left of politics because it offers both sides something in terms of solving perceived educational, economic and social problems around ensuring educational quality, maintaining efficiency and raising issues of equity. The promises of accountability include National security via International Competitiveness; Social Equality and Equity; Good Governance and Choice (Gottlieb 2020).

> When the term was initially floated in the mid-1970s as a means of securing oversight over putatively runaway public spending on education, it appealed only to a narrow constituency. However, when that logic was attached to a vision of supporting educational equality, it found significant traction. And when it also promised to realize meritocratic ideals and foster institutional innovation, it took off.
>
> (Gottlieb 2020, p. 7)

Accountability in all of its varied forms in education "places a strong value on transparency, measurement, and evaluation" (Suspitsyna 2010, p. 570) casting responsibility upon governments and individuals alike. It does this through the enforced spirit of compliance it manages to engender around "tick-the-box" processes as a check on progress. In the USA, as elsewhere, accountability has "played a major role in creating an educational monoculture, as one sees, for example, in the near-universal adoption of Common Core State Standards and the strict definition of teacher quality in terms of behaviours that lift test scores" (Gottlieb 2020, p. 33). There is also often a "mismatch between outcomes and expectations" (Gottlieb 2020, p. 33) where major education policy goals fall short of their intended objectives and are beset by problems of varying kinds (see Polikoff, McEachin, Wrabel and Duque 2013; Davidson, Reback, Rockoff and Schwartz 2013). The study by Polikoff, McEachin, Wrabel and Duque (2013), for instance, showed how the major US education policy of President George W. Bush (2001–2009), *No Child Left Behind (NCLB)*, exhibited several problems long after its launch and implementation. Problems that were encountered included: The narrow range of subject areas actually tested focusing usually on maths and literacy, despite *NCLB* affording education jurisdictions across the USA the opportunity to broaden out and test other subject areas, the pressure of financial costs associated with testing, concerns around the plethora of testing schools and students are subject to an ongoing basis and the lack of consistency around the type of statistical student achievement growth measures used across jurisdictions.

Domination of education by performance management and accountability techniques emphasizing effectiveness and quality for equity purposes have been used in recent times to deal head on with economic and social problems. Equity has been re-articulated "as a measure of performance" (Lingard, Sellar and Savage 2014, p. 710) beyond social well-being goals and towards "fostering greater economic productivity and economic competitiveness within the global economy" (Lingard, Sellar and Savage 2014, p. 715). An important part of this deflective shift in emphasis around equity is a weakening of the "conceptual-discursive accounts of what constitutes social justice in schooling" (Lingard, Sellar and Savage 2014, p. 712) leading to a human capital and productivity framing of equity "as a market-enhancing mechanism linked to macro-economic policies" (Lingard, Sellar and Savage 2014 p. 724).

Deflecting educator attention from matters of context including "aspects of structure and practice" (Keddie 2019, p. 6) is an important part of how the distraction/s generated by a fake debate around measurement is used as an operation of power in fields such as education. The rhetoric around the notion of innovation and its connection to the political imperatives of choice and school autonomy are examples. The market-style mechanism of school choice proceeds on the basis that the constrictions of bureaucratic regulations stifle innovation "enforcing uniformity in the way that children are educated" (Lubienski 2003, p. 396). Advocates of school autonomy claim that only by "choice, autonomy, and competition to make schools more flexible and innovative"

(Lubienski 2003, p. 397) free of state control will there be positive flow-on effects to society.

> In official discourse, school autonomy is presented as a highly positive reform that will raise the performance of schools and their systems by generating conditions of self-management within the market imperatives of diversity, choice, competition and public accountability. In reality, this reform has delivered mixed results with little conclusive evidence linking it with school improvement.
>
> (Keddie 2019, p. 6)

School autonomy shifts educator attention towards system efficiencies with evaluation and assessment used to spotlight "failure". Choice through parents exercising their liberal rights regarding the type of school they choose for their children and the need for distributive justice in terms of giving poor families more schooling options diverts attention from the main game around educational provision. This involves the importation of specific corporate "methods and sensibilities of business and the narrative of enterprise" (Ball and Junemann 2012, p. 100) to distract attention from what autonomy in schooling is really about, "a form of creative destruction" (Ball and Junemann 2012, p. 142) meaning the deliberate political and economic destabilization of public education.

Conclusion

We have sought in this chapter to provide an account of how power operates in the field of education. The argument about the scientific and how fields such as economics and science tend to dominate in how matters of educational importance are conceptualized is made with reference to the work of Bourdieu and Foucault. Both of these theorists emphasize the controlling nature of fields such as economics and science on education. Indeed many of the reforms experienced in the field of education across the globe for over several decades now have not only been influenced by the scientific aspect, they also seek to mirror the scientific method by reducing elements to metrics to allow measures of efficiency. However, what is ignored is the tendency of scientists themselves, to challenge the taken-for-granted assumptions regarding what is important, particularly in education. Scientific verification is something that organizations such as the OECD suggest should be part of how education policy should be made founded exclusively on an "evidence-base" for with they also stipulate what the parameters will be and actively discourage any scientific challenges to them. This then is about the inculcation of a particular sort of politicized scientific ideology in the field of education where selected "tools" of science and economics and not anything the field of education per se will do is able to make any real difference. This connects with the economic crisis rhetoric of governments and of organizations such as the OECD where education is then used as the springboard for enhanced economic competitiveness. The outcome of all this has engendered

a fake debate that has pushed aside the educative nature of teaching diverting educators' attention towards dealing with competitive market-based orientations of schooling and limiting the identity of the teachers themselves within the field of education.

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3 The confines of education policy-making

Introduction

Following on from the previous chapter which drew on Bourdieu and Foucault to explore how power works through the discourse of education, this chapter now seeks to illustrate these influences which drive "scientific" practice in the field. As part of this illustration, this chapter shall include some empirical reporting in the final section. In the bulk of this chapter, we deal with the political and economic assumptions coursing through contemporary education policy-making. Two specific strands of thought are brought together. First, the chapter begins by outlining elements of Pierre Bourdieu's theoretical oeuvre. This is done in order to conceptually frame the policy analysis with regard to *field*, *habitus* and *practice*, and references his concept of doxa to highlight the complex nature of these interconnections and to illustrate their influence in the field of school education, especially around how the field thinks about and evaluates teachers' work. This Bourdieusian notion of "doxa" will focus on the presuppositions underlying major education policy rhetoric across the USA, the UK and Australia, which mirrors a scientific "what works" discursive mode. Second, we connect this narrative to the Foucauldian concept of "governmentality" to show the strategic policy construction of an accountability framework over teachers' work and performance so that it aligns closely with the financial structures of economic productivity, effectiveness and quality. The chapter exposes the "best practice" objectifications of classroom teachers' work where improvements to teacher effectiveness form part of a reified technization of the pedagogic process, including the strict adherence to statistical metrics of evaluation around teaching practice/s attributing causal relationships to student achievement. Importantly the chapter shows that the contemporary purpose/s of education and indeed of teaching practice/s is more about valuing prescriptive and simple "input–output" configurations of pedagogy. The argument mounted is in effect suggesting that the mantras and rationale of the business world and corporatization with their orientation to work-ready skills as pre-eminent outcomes of schooling exerts a form of power over the field of education.

The sociology of Pierre Bourdieu – field/s, habitus, practice

Pierre Bourdieu's contribution to social science research is methodological in scope. Bourdieu rejected pure *theoreticism* which he viewed as overly reliant on theory and a *methodologism* concerned only with method/s and technique/s (Rawolle and Lingard 2013). He rejected the pure subjective/objective dichotomy between the purely theoretical and empirical arguing instead for an integrated account of knowledge about the social world that incorporates the practical or what he termed "an adequate science of practices" (Bourdieu 2004, p. 3). By proposing this Bourdieu is "breaking with subjectivist knowledge of social practices and . . . with objectivist explanation" (Swartz 1997, p. 56). In line with this we have endeavoured to emulate this approach in this very chapter as we deal with *both* the theoretical and its impact on some actual policy documents.

   In order to understand the social world Bourdieu suggested a methodological framework encompassing (1) the analysis of the position of the field under consideration as a field of power, (2) taking stock or objectification of the structural relationships occurring in a field and the position occupied by the various agents who are in competition for legitimate forms of authority and resources with the field and (3) an examination of the habitus of agents active in a field, and the particular set of dispositions they have acquired as they navigate their way through a field (see Bourdieu and Wacquant 1992). Fields are the arenas of struggle structured around the resources (capitals) which constitute spaces of tension as agents vie for strategic advantage through their positioning.

> Fields denote arenas of production, circulation, appropriation and exchange of goods, services, knowledge, or status, and the competitive positions held by actors in their struggle to accumulate, exchange, and monopolize these different kinds of capital.
>
> (Swartz 2013, p. 57)

Alongside the conceptualization of field is habitus which involves the set of conditioning structures, that is, behaviours, dispositions and actions acquired by agents as they work/negotiate their way through a field or fields. Bourdieu holds that the habitus is situated within the bodies and minds of agents helping them in making sense of the field they are engaged in as they navigate their way through it. All fields contain their respective and in most cases idiosyncratic presuppositions or what Bourdieu labels as doxa.

Doxa

The concept of doxa as Bourdieu applies it refers in broad terms to the dominant orthodox or "taken for granted" views (meanings and understandings) inherent in and imposed on people as part of their interaction with and engagement in fields of struggle. He first used this concept in his studies on the practices and

attitudes of societies, where doxa in this experiential sense is about the "pre-reflexive intuitive knowledge shaped by experience, to unconscious inherited physical and relational predispositions" (Deer 2014, p. 120). Predispositions are the particular thought or un-thought behaviours/actions engaged in by people shaped by the *habitus*. The *habitus* is a concept Bourdieu uses to explain the basis of all practices. The *habitus* "produces practices . . . while adjusting to the demands inscribed . . . in the situation" (Bourdieu 2004, p. 78) and so as such is "a social product, a specific embodiment and set of dispositions, dependent upon particular cultural characteristics and modes of transmission" (Hardy and Lingard 2008, p. 64).The field relevance of doxa in modern societies reflects the "theorization of practice" (Myles 2004, p. 93) characteristic of the unique set of orientations and perceptions reinforcing a public "right opinion". It, as Deer points out, "similarly refers to pre-reflexive, shared but unquestioned opinions and perceptions mediated by relatively autonomous social microcosms (fields) which determine 'natural' practice and attitudes via the internalized 'sense of limits' and habitus of the social agents in the fields" (p. 120). This means that doxa is constituted by ideas and values – forms of epistemology – which is the knowledge reflected as sets of unquestioned and generally universally accepted beliefs, perhaps the accepted doctrines in fields. This is why we have chosen to take up the epistemology of education as our central concern in this book, in order to encourage some critical reflexivity by agents within the field of education to re-evaluate the taken-for-granted beliefs of our daily practices. In the "every-day knowledge" (Gardiner 2006) expressed by a particular field in question, the nature of doxa is in effect the "taken-for-granted assumptions (orthodoxies)" (Deer 2014, p. 120) which are accepted as the "self-evident truths located in values and discourses found in any field of interest" (Gunter and Forrester 2010, p. 57). In other words, doxa has epistemological connotations via adherence to the "instituted discourses" founded by a unanimity that comes with "the *author-ity* [emphasis original] and *necessity* [emphasis original] of a collective position adopted on data intrinsically amenable to many other structurations" (Bourdieu 2004, p. 167).

In the field of education, the concept of doxa can be applied across a range of areas by agents such as ourselves, in the field of education. Doxa is useful in showing up the beliefs and values inherent in the school-system reform/s of recent decades where specific policy presuppositions involved in areas such as heightened accountability, effectiveness and quality, evidence-based practice, large-scale measurement and so on represent a "*doxa* [emphasis original] of performativity" (Pratt 2016, p. 896). This can be seen more starkly through the performance management approach of contemporary schooling and the narrative that accompanies it where target-setting and a focus on "delivery" provides impetus for school-system change in order to "motivate and inform system improvements with respect to both excellence and equity" (Gewirtz, Maguire, Neumann and Towers 2019, p. 2). The move in this direction is supported by an education policy "common-sense" or doxa skewed towards outcomes where the end-points of schooling connect with the economic needs of nation states. The work of

schools and indeed of teachers can then be steered so that the three priority areas of curriculum, teaching practice/s and assessment focus on skill development and "the basics" of literacy and numeracy.

The "common-sense" political and economic *doxa* of schooling reform relates to the transformative imaginaries of globalization where sustained economic progress is attained via competitive advantage.

> Globalization can be thought of as a process (or set of processes) which embodies a transformation in the spatial organization of social relations and transactions – assessed in terms of their extensity, intensity, velocity and impact – generating transcontinental or interregional flows and networks of activity, interaction, and the exercise of power.
>
> (Held, McGrew, Goldblatt and Perraton 1999, p. 16)

Globalization has involved global shifts towards financial de-regulation redefining the policy architecture/s driving economic development so that the imperative/s of an "applied" human capital in the form of "employment ready" skills take on an added importance. In the field of education globalization has:

> Elicited two key types of educational policy responses from nation states. Beginning in the 1980s, *finance driven reforms* [emphasis original] – the search for cost efficiencies, the introduction of new forms of user payments, and other sources of private finance – came to characterize both Western countries and those in the developing world (Carnoy 1999). Alongside these reforms, *competitiveness driven* [emphasis original] changes to education systems, including the introduction of new outcomes based performance standards, national and international assessments, new modes of accountability, decentralization of services, and the diversification of service providers, came to characterize a new drive for educational improvement around the world (Carnoy 1999).
>
> (Mundy, Green, Lingard and Verger 2016, p. 4)

In tying economic prosperity more tightly to the *doxa* of education reforms of a particular hue – standardization, for example, the focus on narrow skill development around literacy/numeracy, and the ideas of corporatization and managerialism, that is, marketization/privatization – the comparative performance of education systems is made more visible. This then opens the way for new modes of governance in the field of education with an eye to cost minimization.

This then is about a particular "form of government", "governing" and "being governed" in which the field of education including all that work within it and most importantly classroom teachers have their behaviours and performance carefully directed, monitored and evaluated. Governance in the field of education aligns against the narrow and instrumentalist performance orientations of the current economic context which prioritizes a depoliticized and corporatized sense of *being*. Governance arrangements favoured by economic markets exhibit an inspectorial role where standardized testing, cross-national and global comparisons, a

narrowing of curriculum towards generic skill sets and tighter management and regulatory control/s all feature prominently (see Kelly et al. 2018).

Linked to this is a particular politico-economic *doxa* predominant within the Anglo-American expression of global capitalism – Neo-liberalism. Neo-liberalism is defined by Mundy, Green, Lingard and Verger (2016) as:

> The predisposition of governments to increasingly favor free market solutions over governmental intervention, and individual effort over the provision of collective safety nets.
>
> (p. 6)

In the field of education, neo-liberalism has especial significance because it separates out or divests government of responsibility in its provision of important functions as social investment for the greater "public good". In other words, the only legitimate form of investment in education for example is that which an individual is prepared to make drawing on their own resources in furthering their ends/aims. In this way, education is viewed simply as a commodity or "service" where any decision-making about it is rightfully transferred over or left to the "free market". The education policy *doxa* under neo-liberalism in addition to the many and varied technological advancements of recent years around "big data" surveillance and storage has ushered in widespread "market choice policies, privatizations of various kinds, new standardized testing regimes . . . new test based modes of educational accountability, and an emphasis upon educational standards" (Mundy, Green, Lingard and Verger 2016, p. 6). In other words, a new form of "neo-liberal governance" over the field of education which Stewart Ranson characterizes as an "intensifying regime" of strengthened accountability via "distinctive relationships and evaluative procedures" (Ranson 2003, p. 462).

This type of *doxa* tuned into the workplace change mantras of "new flexibilities", sweeping the globe in the latter part of the twentieth century (see Boltanski and Chiappelo 2005). Education began servicing the human capital investment side of the corporate need for change and "adaptabilities" where work organizations intensified expectations on their employees.

> To be more efficient, some organisations delegated responsibilities for decision making to those who knew best the particular contexts for those decisions and, in turn, these decision makers were held accountable for outcomes.
>
> (OECD 2019, p. 7)

At the school level:

> Standardised testing was valued to ensure accountability. Schools were expected to be accountable for their outcomes. Teachers were increasingly expected to comply with standards ensuring that all students, regardless of their background, were provided equitable opportunities to learn.
>
> (OECD 2019, p. 7)

The *doxa* in all of this loosely acknowledged the non-economic benefits of education beyond the economic presuppositions of "maximum growth . . . productivity and competitiveness" (Bourdieu 2010, p. 109). Nonetheless it still relied on and used positivist research methods and categories borrowed from the fields of economics and science to report on the processes and practices of education to then question purpose. In other words, the search for prudentialist efficiencies and "what works" interventions, that is, behaviourist input–output conceptualizations of the purpose/s of education topped understandings of the discipline "as a field of human action – of informed ways of being and doing" (Biesta 2015, p. 679). This marks the current political/economic milieu of the field of education.

A policy *doxa* on teachers' work

The move towards heightened economic competitiveness under globalization and "neo-liberalism" appropriates the re-shaping of education systems in ways that affects teacher practice/s. Connected to this is a "testing for accountability" (Smith 2014, p. 3) policy *doxa* framed by a control and management approach concerned with the maintenance of quality and effectiveness. The main policy driver involved is a commitment to testing and the evaluation (audit) of teacher performance as information best suited to ensure the robustness of education systems for the demands of a "knowledge economy". A knowledge economy is based on industries of knowledge or knowledge formation such as "education, science, research" (Rawolle 2005, p. 705) amongst others. Economic development in a knowledge economy depends on knowledge-related production meaning creation and sustenance of national economic advantage via the twenty-first-century skill sets of "cognitive capitalism . . . a formation in which relations of production depend on workers' intellectual and knowledge work" (Morgan 2016, p. 806). We highlight with Schleicher (2012), that the preparation and effectiveness of teachers is crucial in this endeavour.

Teachers' work in a knowledge economy is increasingly being re-conceptualized along a numbers-driven and testing for accountability reference point. This deliberate strategic move has resulted in changes to "teachers' subjective existence . . . where objectification, quantification, and measurement are no longer treated as antithetical to teacher professionalism, but as precisely what teachers need to know and monitor themselves, improve themselves, and fashion themselves as professionals" (Holloway and Brass 2018, pp. 379–380). The re-alignment of teachers' work towards this end point is about the changing role of the teacher in a knowledge economy.

> If education is charged with providing the necessary tools for learners and organisations to negotiate the critical transition to a knowledge economy, then teachers are cast as primary agents of change, working at the coalface of the knowledge economy revolution.
>
> (Griffin et al. 2017, p. 37)

Teachers' skill sets will change to accommodate new demands. This will involve a broadening of teachers' skill sets beyond basic organizing and delivery of curriculum content to where their role and professional identity take on that of facilitator of learning which means providing effective and tailored student academic support. The constant monitoring and subsequent reform of teachers' expertise involving the ongoing professional learning needed to develop their skill sets, behaviours and credentials including the type and implementation of teaching practice/s used in classrooms forms part of this number-driven policy for accountability *doxa*.

> In short, the kind of education needed today requires teachers to be high-level knowledge workers who constantly advance their own professional knowledge as well as that of their profession. Teachers need to be agents of innovation not least because innovation is critically important for generating new sources of growth through improved efficiency and productivity.
>
> (Schleicher 2012, p. 36)

In other words, the effective "expert" teacher draws on a level of professional expertise or capability connected to an "evidence-base" of "what works" to enact change in student learning growth. This idea has a foundation in the extant education and teacher effectiveness research (TER) literature where the central key role a teacher has in terms of their classroom work and practice is the major driver in promoting student learning gain (see Charalambous, Kyriakides, Kyriakides and Tsangaridou 2019).

There are two features of this evaluative work on teachers and their performance worth mentioning. First, TER buys into a series of assumptions about the education system and teachers more broadly, that is, that both are "underperforming" and so must be fixed or reformed in some way. This can only be achieved by applying scientific techniques of instrumental rationality usually in the form of precise measurements on their teaching and subsequent student learning so as to understand how best to improve and make teaching more efficient. Second, there must be a concerted effort by those in the field of education effectiveness research more specifically to make the case for reform and then convince policy-makers of the need for change particularly around the work of teachers, their teaching practice/s and subsequent evaluation. This requires a specific technical and authoritative *doxa* which revolves around what makes for a good and effective teacher. We revisit aspects of the knowledge economy and how it affects classroom teachers in the following chapter.

Teacher effectiveness

The concept of teacher effectiveness is about the central role taken by a teacher in developing student learning (Muijs and Reynolds 2011). It can be broken down into two categories emphasizing the learning gain made by students over time when taught by a particular teacher and/or by the type of pedagogy or

classroom instruction used. Studies in teacher effectiveness (i.e. TER) comes in different guises although is in the main an approach to inquiry which seeks to depict teacher performance on student learning (see Skourdoumbis and Rawolle 2020). The quantitative statistical nature of the TER approach reports on correlations of effectiveness between chosen variables of interest such as teacher behaviour, teacher expectations, classroom organization or use of resources and the effect/s these have on student learning (see Creemers and Kyriakides 2008) and achievement.

TER relies on measurement and so as a quantitative technique of research is interested in relative effect sizes and variance. The field has a rich history and has roots in the work of American Psychologist Edward L. Thorndike who was a champion of the precise nature of quantitative science, particularly behaviourism and metrics, and its capacity for advancing the discipline of education (see Lagemann 2000). As part of the educational effectiveness tradition more broadly TER is based on a macro-model of interlinked variables where external contextual influences (e.g., socio-economic status) with impacts on the school and classroom are mediated by the inputs of teachers and their practices (i.e. the process throughputs) for desired outcomes. The systems theory "input – process/throughput – output" *doxa* of TER presents a "scientific" account of educational practice by privileging metric evaluations of teachers' work.

> It therefore seeks to identify and explore the factors related to teaching, curriculum, and learning environments that may explain in a statistical sense (both directly and indirectly) the variation in student outcomes, while also controlling for student intake characteristics such as socio economic status and prior attainment/ability.
>
> (Sammons, Davis and Gray 2015, p. 30)

In other words, TER places an overwhelming emphasis on test results as the endpoints of learning and so reflects a narrow reduced interpretation of education. It introduces a method of inquiry into classroom actions which is dependent on statistical control, where this latter aspect operates as a form of methodological and contextual reductionism laden with mathematical assumptions and simplifications as the way to make determinations about educational and by implication teacher performance.

The underlying message or *doxa* in TER is about what counts as good teaching. To be a good teacher is to be an effective teacher. An effective teacher is high-performing, meaning they have the capacity to lift their students' learning into the designated top tiers of prescribed markers of achievement regardless of student cultural and/or economic background. The connection is often made particularly by governments and some TER of the long-term economic benefits over a lifetime of good and effective teaching. For example, a study by Chetty, Friedman and Rockoff (2014) found that good and effective teachers have long-term impacts on students via increased college attendance, higher salaries and increased life chances. President Barack Obama in his 2012 State of the Union

address mentioned the economic benefits accrued over a lifetime ascribed to good and effective teaching.

> We know a good teacher can increase the lifetime income of a classroom by over $250,000. A great teacher can offer an escape from poverty to the child who dreams beyond his circumstance. Every person in this chamber can point to a teacher who changed the trajectory of their lives. Most teachers work tirelessly, with modest pay, sometimes digging into their own pocket for school supplies – just to make a difference. Teachers matter. So instead of bashing them, or defending the status quo, let's offer schools a deal. Give them the resources to keep good teachers on the job, and reward the best ones.
>
> (Obama 2012)

The implied *doxa* in this messaging is that good and effective teachers (nothing else?) contributes to increases in individual well-being and positive life chances including the benefits of higher paying employment prospects. Ineffective bad teachers must be identified and removed from the education system because they invariably don't contribute anything and probably act as a "drag" on the individual life chances of students.

Implicit in the *doxa* of teacher effectiveness is the perceptibility inherent in identifying what effective and good is. Good and effective teachers have qualities that makes them instantly recognizable and so stand out from their less effective colleagues. Gottlieb (2015), in his work on teacher quality and effectiveness, suggests that there are two conceptions at work around the notion of good teaching. The first aligns with what he terms is the "ordinary" concept of good teaching, whereas the second he terms the "technical". The "ordinary" evokes the taken-for-granted "common sense" notions of good teaching. In this conceptualization, the teacher rises to the challenges involved in their vocational "calling"; they provide a natural inspiration to their students by fostering a love of learning that lasts a lifetime and in all likelihood will affect the trajectory of a student's life course. The technical conceptualization "differs from the ordinary primarily insofar as it rests upon implicit characteristics or features laid out aprioristically" (Gottlieb 2015, p. 52). There is a causal connection to the notion of "student learning" in this conceptualization as it pertains to increases in maths, literacy/reading and science scores, that is, a good and effective teacher can lift these scores in these crucial "knowledge economy" discipline areas. This belief about good teaching is borne out in President Obama's major education policy of a *Race to The Top* (RttT). We return to this point again later in this chapter when considering the RttT education policy implemented by the Obama administration.

> Good teaching in its technical sense is then revealed according to its effectiveness in lifting test scores. For this reason, the technical concept of good teaching also goes by the name of "effective teaching" in the literature.
>
> (Gottlieb 2015, p. 52)

Importantly, the characteristics of the good and effective teacher can be ascertained and mapped via adherence to established TER protocols or markers. This means that there is the possibility of learning how to be a good and effective teacher because to be such involves learning a series of practices or techniques that if consistently applied yields desired results. Moreover, markers or indicators of good and effective teaching can be "scaled up" and applied to every classroom in every school as they have universal qualities and so can be applied across the school system.

A methodology *doxa* – models and laws

The established "order" of TER models the openness of the social world of the classroom as though it were a closed system. This shift in thinking between the subjective qualitative demands involved in the classroom and how the latter is represented by modelling introduces a distortion. The distortion is a feature of modelling particularly of a modelling which seeks to capture the qualitative richness of classrooms in quantitative terms where "the act of creating a simplified theoretical structure to represent real-world events" (Skidelsky 2020, p. 61) serves to dispense with other material. This other material which incorporates the daily dynamics of social life and is by extension dependent upon and affected by the economic, the cultural including language, the historical and the political is usually considered extraneous to the matter-at-hand or is too complex to represent and so should be left out of any modelled representation as it only confuses matters.

Scientific generalizations serve as the *doxa* of TER and more broadly policy on teacher performance. The pretence of teacher effectiveness rests on the status accorded "laws" of prediction and evaluation around what makes for a good teacher. Measurement and comparison provide for a sense of scale where fusion between disparate variables (human behaviour, socio-economic status, the influence of context in all of its varied guises, etc.), coalesce to yield a precise reading of performance. This can only be achieved through the imposition of generalization. To generalize and simplify requires deciding on what to include and exclude. The scientific logic involved in making the "non-linear" linear, that is, using models as a way to predict, describe and prescribe good/effective teaching is how classroom experience is transfigured via the mathematics of regression analysis. This mathematical instrument of knowledge fits a straight line between the variables of interest (which in turn have already been pre-decided by the researcher) to ascertain and test for statistical significance. In this way, the uses of models functions as a technique of legitimation because it takes the assumptions made in the first instance about pedagogy and the interactions involved in classrooms and organizes them into principles of practice.

This is how a technocracy of schooling/teaching practice takes shape. There is a history to it, as it evolves through a deliberate technical strategy giving the "scientific method" an authority in the epistemology of the actual discipline of Education itself. To make sense of it means grappling with and making sense

of discursive inflection points filled with mathematical concepts and statistical abbreviations – approximations, indices and so on. This artificial re-construction of classroom experience by what is presumed to be "the" scientific method is about the imposition of an authoritative legitimacy and ultimately stability and control, and which we contend is not actually reflective of a genuinely "scientific" approach as even identified by Bourdieu in the previous chapter. Explanations of "best practice" about effective teaching give expression to the muddied classroom experiences of teachers making them easier to catalogue and evaluate against system defined performance markers. They also act as controlling mechanisms around effective teaching as teachers self-monitor their performance against system endorsed depictions of "best practices".

Governmentality

A concept synonymous with Foucault is governmentality. Governmentality is a concept he frequently has used to examine the management and regulation of human behaviour. It is interested in how power operates at either a micro or macro level to shape and control human actions, that is, for both the theoretical and the subjectively experienced levels.

> Governmentality is not just about national and local political control, but also refers to the self, so is also how and why the self shapes its own conduct in particular ways.
>
> (Perryman, Ball, Braun and Maguire 2017, p. 746)

Governmentality is about the rational art of government meaning the controls in which power is exercised. Foucault's definition of governmentality encompasses a historical component as he was interested in tracing the movement over time of the State towards intervention as a form of political control over populations. Nonetheless by way of definition Foucault offers the following on governmentality:

> By "governmentality" I understand the ensemble formed by institutions, procedures, analyses and reflections, calculations, and tactics that allow the exercise of this very specific, albeit very complex, power that has the population as its target, political economy as its major form of knowledge, and apparatuses of security as its essential technical instrument.
>
> (2007, p. 108)

Governmentality offers the critical theorist the opportunity to inquire into the ways that power "conducts the conduct" (Foucault 2008, p. 186) of people, meaning their management whilst being governed. This is an important element of this book because it seeks to connect the accepted "doxa" associated with quantitatively "empirical" abstract inquiries about "what works" in education with the performative structures and procedures of current education policy

particularly around teachers' identity and work, and how the latter not only has an impact on student achievement, but in how it also contributes to important national economic imperatives.

Perryman, Ball, Braun and Maguire (2017) have written about the translation of policy meaning the "set of relationships and practices" specific to oneself "that enable policy to become a part of the practice, perception and self-crafting of teachers" (p. 754). This occurs by way of teachers working on themselves through the various strategies of policy offered by "the gaze" of surveillance; observations by peers and school managers (formal or otherwise), classroom learning walks, critical self-reflection, continuous professional development, self-improvement and reflexivity. All this represents a form of governmentality over how classroom teachers manage and are managed by system imposed techniques of control.

> Teachers in effect become policy, but not in some visible brute form, rather in a process that hails them through "interest" and "curiosity" to improve themselves, become a better teacher, a "good" teacher. This is done by making the teacher responsible for themselves and their practice in a relationship of "ownership" of policy; but at the same time, as part of that "good" teacher, they are made responsible for the performance of their students and the school as a whole. In this respect, the teacher is hailed as a very particular kind of ethical subject who is left to resolve a set of displaced tensions, in relation to their students, between care and calculation, and intrinsic value and extrinsic worth, while striving for excellence in their practice.
>
> (Perryman, Ball, Braun and Maguire 2017, pp. 754–755)

This is the basis for the development of the self-governing individual teacher worker, productive and governable via a self-managed accountability of "nurtured compliance, aspiration and drive for educational performativity and measurement" (O'Neill 2015, p. 850).

Framing the policy argument – the right sort of teacher

In this final section of the chapter, we now wish to share some brief empirical analyses. The increased accountability and strict evaluative technologies of governance within the field of education has manifested in a way that binds the work of classroom teachers with the needs of national and global economies. The increased governance of teachers' work through strengthened monitoring and control focuses on steering their practice towards particular economic priorities which are in the main a greater reliance on the hallmarks of marketization and corporate type management. National and global education policies reflect this change in emphasis with a leading global intergovernmental player the Organisation for Economic Co-Operation and Development (OECD)

at the centre of these developments. What now follows is a brief empirical analysis of (1) the OECD as a global policy-making "player" of influence and (2) a major American school education policy, the Obama administration's *A Race to the Top* (RttT).

The global international "player": the Organisation for Economic Co-Operation and Development (OECD)

> The OECD as a global organization interested in enhancing the economic development of its member states has always maintained an active interest in the fields of education and higher education.

> As part of its devotion to improving the economic performance of its member states, education has been one of the policy fields in which the OECD has been active from the very beginning. However, despite its long-time involvement in education policy, the organization only recently developed into a central actor in this field.
>
> (Jacobi and Martens 2010, p. 1)

The OECD maintains active involvement in education by often setting the policy agenda at both national and international levels. It does this through its work around development of new governance structures and instruments and by the promotion of "innovative" policy proposals based upon its data work. The statistical knowledge the OECD generates on education systems, teachers and students via its evaluation reviews, "Education at a Glance" comprising the results of its triennial Programme for International Student Assessment (PISA), not only generates significant global attention but also shapes the education policy debate worldwide. Grek (2017) claims that the OECD "has become a key knowledge producer, mediator and teacher not only because of PISA, but also through a great amount of local, national and face-to-face work" (p. 296). An important and central feature of recent OECD work in education has been around teacher quality and effectiveness (see OECD 2005). Sorensen and Robertson suggest that the OECD "in 2002 began to draw attention to what they claimed were concerns over the effectiveness of teachers, arguing" for the "need to review trends across the OECD member and associate countries so as to identify policy options for attracting, developing, and retaining effective teachers" (2017, p. 118). A primary objective was the "development of indicators on teachers and teaching that might parallel that of students. In combination the hope was that these complex sets of global indicators could drive educational policy-making globally" (Sorensen and Robertson 2017, p. 118). The work done by the OECD in this area has entrenched it as the "key actor in the emerging discourse" around teacher quality, teacher effectiveness and quality teaching "which targets changes in teachers' work" (Berkovich and Benoliel 2020, p. 499).

This quite selective discourse comprises key propositions around the appraisal of teachers and school leaders and the evaluation of their performance. Areas of assessment include teaching practices, beliefs, attitudes, feelings of self-efficacy, preparedness to participate in professional development and so on. The "evidence" gathered as part of this process is framed by the OECD as "best practice" and is what leading school systems do to maximize student achievement in challenging economic times.

> The challenges facing education systems and teachers continue to intensify. In modern knowledge-based economies, where the demand for high-level skills will continue to grow substantially, the task in many countries is to transform traditional models of schooling, which have been effective at distinguishing those who are more academically talented from those who are less so, into customised learning systems that identify and develop the talents of all students. This will require the creation of "knowledge-rich", evidence-based education systems, in which school leaders and teachers act as a professional community with the authority to act, the necessary information to do so wisely, and the access to effective support systems to assist them in implementing change.
>
> (OECD 2009, p. 3)

Berkovich and Benoliel (2020) claim that this is an example of how OECD rhetoric around teacher quality and education performance queries teacher expertise with the teaching profession characterized as "lacking adequate skills, relevant goals, and the ability to innovate" (p. 502). This negative characterization of teachers casts a shadow across the teaching profession which connects to a broader OECD narrative around teacher quality based in what Berkovich and Benoliel (2020) suggest is a "a discourse of fear to market teacher quality in light of global changes implicitly framing teachers as 'bad teachers' " (p. 496) in need of reform.

A national policy from the USA – **A Race to the Top** *(RttT)*

A RttT (2009) was conceived as a "competitive grant program" (Miller and Hanna 2014, p. 1) by the Obama administration (2009–2017). A key aim of this major American federal education policy was to incentivize US states to create "the conditions for education innovation and reform" (U.S. Department of Education 2009, p. 2). There are four major reform components in a RttT comprising:

- Adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy;
- Building data systems that measure student growth and success, and inform teachers and principals about how they can improve instruction;

- Recruiting, developing, rewarding, and retaining effective teachers and principals, especially where they are needed most; and
- Turning around our lowest-achieving schools (U.S. Department of Education 2009, p. 2).

Each reform reinforces stringent accountability through strong innovation, curriculum standardization, teacher evaluation and choice. A RttT adopted a points scale framework encouraging state applications as part of a competitive funding process around the reforms outlined earlier. Student achievement was highlighted as a priority area as was the evaluation of classroom teachers around lifting the proficiency of student learning. This could only be done if there were clearly defined standards around a curriculum deemed "correct and common . . . , combined with rigorously-aligned assessments . . . both in terms of content and in terms of achievement level, where the level is determined by comparison with the international community and the content is determined by the (projected) demands of the future job market and institutions of higher education" (Gottlieb 2015, p. 9).

In broad policy terms, a RttT reflected cross-field intergovernmental effects with federal political and economic aims influencing US state based education policy (see Mcguinn 2012). Obama's RttT sought major school education policy reform with concomitant reforms in teacher accountability, school choice and curriculum as a priority. As "the first major federal effort in the U.S. to standardize teacher evaluation policies that have historically varied widely across states and districts" (Garver 2020, p. 626), a RttT incorporated many of the perceived policy specifics of recent decades including large-scale measurement, standardization, ratings and value-adding. It remained committed to the free-market governance logic espoused by successive governments which remains a defining feature of the field of school education in America and across the OECD (see Garver 2020). A RttT also traded on the orthodoxies of economic science with an emphasis on the assumptions and interpretations of a results-based verification and efficiency agenda. This was to be achieved through the derivation of state and school-based reform plans involving "high-quality assessments" (RttT 2009, p. 8) of student achievement and teacher effectiveness. Data and its utilization were paramount particularly in terms of how data is used "to improve instruction" (RttT 2009, p. 8).

The work of classroom teachers in a RttT attaches most strongly to how well they prepare their students for life beyond school. The criterion of "college and career readiness" in a RttT is "the determining factor of both content and achievement levels" (Gottlieb 2015, p. 13) and interconnects with a drive towards data on student achievement around the "essentials" of maths, reading and science. The Great Teachers and Leaders category in a RttT attracted the highest points allocation (138 points). The category encouraged policy enactments in the form of financial inducements around improving teacher and principal effectiveness

based on performance (see Howell 2015). David Hursh in his study of New York schools and their take up of a RttT had this to say on this point:

> New York, as required to receive federal funding under President Obama's Race to the Top (RTTT) initiative, has begun using students' scores on standardized tests as the primary criteria in evaluating teachers. Students' test scores will be used to decide whether teachers will be rated highly effective, effective, developing, or ineffective, and those rated ineffective or developing will be required to receive additional professional development. In New York City, if a teacher receives a low rating for two consecutive years – a likely classification given the grading curve – schools can begin the process of terminating them.
>
> (Hursh 2013, p. 575)

This subjectivating positioning of classroom teachers as "the difference" in student achievement reinforces the dominant political and economic policy presuppositions of recent times, that only the work of classroom teachers has the necessary and decisive effect of not only enhancing student achievement and schooling success, but that they are crucial in the prosperity of students post-school.

The focus on teacher accountability in a RttT aligned with the Obama administration's strong "reform discourse on teaching" (Gottlieb 2015, p. 14) where evaluation of teacher effectiveness is made via student achievement data correlated against teacher practice in terms of classroom instruction. The policy targeted teacher evaluation and tenure systems encouraging the online publication of teacher and principal evaluation data (see McGuinn 2012). The strong emphasis in a RttT on teacher accountability underscored the Obama administration's commitment to comprehensive and major education reform of teacher quality and effectiveness. Federal government funds in a RttT "to increase student achievement, decrease the achievement gaps across student subgroups, and increase the rates at which students graduate from high school prepared for college and careers" (U.S. Department of Education 2009, p. 4) encouraged a re-thinking of how data was used by schools and school systems particularly in terms of the identification of effective/ineffective teaching practice/s. This had a direct effect on the preparation, hiring and firing of teachers in various US states.

Conclusion

In this chapter, we have sought to engage with the political and economic assumptions coursing through contemporary education policy-making and it deals with the important Bourdieusian concepts of doxa, field, habitus and capital in company with the Foucauldian concept of governmentality. This is in order to highlight the discursive education policy presuppositions which act as a form of doxa not only over classroom teachers' work but also over the field of school education that in turn positions classroom teachers as "the difference" in student achievement. The chapter to this end explores the framing of

policy specifics around the type of preferred classroom teacher by examining a dominant global education policy-making organization, the OECD and also the major education policy a *Race to the Top* (RttT). The main argument of the chapter reinforced by the brief empirical examinations provided is that contemporary education policy reflects the wider global shift in emphasis occurring around linking educational performance and the type of classroom teacher and the work that they do to economic success which is founded on the presuppositions of so-called scientific "data".

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4   Crisis and change

Introduction

Beginning with the Bourdieusian notion of "hysteresis", this chapter argues that the potential for change in the field of education is prevented by the persistent fear of economic collapse that manifests as a series of transformational flow-on effects with consequences for classroom teachers. State intervention in the form of major structural reforms shapes the field of education through the implementation and imposition of "doxa" and ways of doing. The resultant paralysis creates a mismatch between the Deweyan precept of the educative learning experience, which caters to a classroom teacher's autonomy via their attitudes, practice/s and disposition/s (habitus), and the governmentalization of the discourse/s of standardization. The chapter will draw upon a small-scale study of teacher autonomy where two secondary school classroom teachers (Margaret and Trevor) from the Australian state of Victoria have been selected due to their exceptionally long experience in the profession. The study focused on explicating the operationalization of teacher agency over a period of time in an education policy environment currently focused on student learning growth and achievement where the latter defines narrowly as forms of knowledge, skills and a mindset that accepts the uncertainties of contemporary labour markets. To this end, the chapter is seeking to explore how practising classroom teachers view their work in an education policy environment which at one level expects them to enact their professional autonomy whilst also working to curtail it.

Crisis politics and hysteresis

The central theme coursing through the reformist epistemology of education of recent decades is a politics of crisis, particularly of economic crisis. Slater (2015) has characterized the crisis politics of our current era as one mired in a recurring loop of "crises, disaster, and reform" (p. 1). He postulates that the economic disequilibria encountered in contemporary societies encloses the field of education into "a totalizing neoliberal lifeworld" (Slater 2015, p. 1) which is as much about how education contributes to "a process of recovery" as it is about the broader "crises politics of neoliberal education reform" (p. 1). In other words, the politics of economic

crisis is used as the reason and impetus for reform and change in the field of education, and education is the vehicle through which future recovery hinges.

The modern, that is, post-1980s interconnection of crisis politics and education emanates from a dominant and converging econo-business and cultural–political debate. Both sides of the debate assert the supposed failure and shortcomings of the public education system and the poor teaching practices of classroom teachers (see Skourdoumbis and Rawolle 2020). Curriculum, pedagogy and the forms of assessment used are all critiqued for their supposed inadequacies. In Australia, the USA and the UK in the 1980s major changes in education policy connected with national economic reform agendas. Government concern about maintaining national economic competitiveness thrust debate about the role of education and classroom teachers in a rapidly changing and globalizing world into the policy spotlight jolting "governments to reconsider how education can be harnessed as part of national economic and social policies in a context of intensifying competition between countries" (Savage and O'Connor 2015, p. 609). In the USA, the Reagan administration's *A Nation at Risk* report of 1983 "identified public education as the cause of a *national* [italics original] crisis within the sphere of *global* [italics original] economic competition" (Slater 2015, p. 4). The report "decried the falling quality of education standards and warned of economic turmoil if schooling systems were not reformed" (Savage and O'Connor 2015, p. 613). *A Nation at Risk* in many ways exemplified the crisis rhetoric around education and the economy at the time in the USA, Australia and the UK and helped usher in the new education policy dynamic of efficiency, especially between the core inputs and outputs of the education system that is, the teaching practice/s of classroom teachers and student achievement. Whilst *A Nation at Risk* represents the most obvious policy-oriented report of recent decades to have launched the attacks against public education, particularly from within the USA (see Zhao 2009) and subsequently across the Anglo-American batch of OECD nations, the low performance and productivity message that it projects has been a constant throughout the second half of the twentieth century in countries such as the USA, the UK and Australia.

An important defining feature of crisis politics in education in modern societies is the perceived misalignment or break in the maintenance of what Rosa, Dörre and Lessenich (2017) claim is "dynamic stabilization" (p. 53). Couching their argument in terms of what defines a modern society, Rosa, Dörre and Lessenich (2017) suggest that dynamic stabilization encapsulates the essential features needed for the successful reproduction and preservation of the socioeconomic and political status quo ". . . in terms of its functionality and its basic institutional and distributional order" (Rosa, Dörre and Lessenich 2017, p. 54). Dynamic stabilization "requires (material) growth, (technological) augmentation and high rates of (cultural) innovation" (Rosa, Dörre and Lessenich 2017, p. 53). A fully functioning capitalist economy necessitates a stable and permanent growth contour where the production of goods and services must continually increase.

> This, by consequence, leads into a spiral of escalation. No matter how high the gross domestic product has been this year, it needs to be even higher next

year, no matter how fast processes (for example in the production of goods and services) or the rates of innovation already are, they need to become even faster – for if they do not, there will be an economic slow-down, followed by a whole array of economic, social and political crises.

<div align="right">(Rosa, Dörre and Lessenich 2017, pp. 60–61)</div>

The disconnection/s experienced when the expected "returns" don't materialize reinforce the dislocations encountered, that is, the hysteresis of field re-structure.

Hysteresis is a term that Bourdieu used to describe the disconnection/s and misalignments which occur when particular expected patterns of action don't follow. The mismatch which eventuates strikes at accepted belief systems where anticipated outcomes, based on practical belief are in conflict with the daily dynamism of temporality. Bourdieu uses the term in his work when seeking "to describe the disruption in the relationship between *habitus* [emphasis original] and the field structures to which they no longer correspond" (Hardy 2014, p. 134). In the field of education for example, major policy re-directions often result in structural changes leading to hysteresis. Hardy (2014) provides the example of English primary schools in the UK under the Blair Labor government (1997–2007) to illustrate this. The implementation of the National Strategies in Literacy and Numeracy program developed by the Blair government in the UK "resulted in a major mismatch between teachers' attitudes, practices and dispositions (habitus) and government regulation and recommendation (field structures) – giving rise to hysteresis among many of those involved" (Hardy 2014, p. 144). The policy and structural change encountered by teachers re-drew accepted conceptual orthodoxies around pedagogic practice/s including long accepted educational terms upending "the legitimacy of particular attitudes, dispositions and social and organizational structures" (Hardy 2014, p. 144) within the British field of education particularly in terms of how teachers were to implement the literacy curriculum. The discipline of English became literacy, while Mathematics became numeracy as one basic example of this change in educational emphasis.

> New opportunities resulted as organizational structures in schools and local government were modified to reflect the new *doxa* [emphasis original] – advisers became *strategy managers* and *consultants* [emphasis original], mathematics and English co-ordinators in schools were reborn as numeracy and literacy *subject leaders* [emphasis original].
>
> <div align="right">(Hardy 2014, p. 144)</div>

Similarly in other fields such as economics for instance, the disruption/s that accompany large-scale change of one form or another not only reconfigure "physical landscapes" (Harvey 2014, p. ix) they also alter and disrupt although more importantly exacerbate basic insecurities of existence with attendant "questions about the nature of time, space, embodiment and knowledge" (Steger and James 2020, p. 189). David Harvey (2014) describes this global vulnerability in

all-encompassing terms where the "dynamics of instability" (Steger and James 2020, p. 188) brings with it

> changes in ways of thought and understanding, of institutions and dominant ideologies, of political allegiances and processes, of political subjectivities, of technologies and organisational forms, of social relations, of the cultural customs and tastes that inform daily life.
>
> (Harvey 2014, pp. ix–x)

Such re-evaluations of familiar life-worlds bring into question "symbolic capitals and sources of legitimacy" (Hardy 2014, p. 148), key established elements connected to the inter-relationships which comprise human existence.

Operationalizing teacher agency in times of crisis

Teacher agency "is enacted when teachers attempt to control or influence curriculum in an effort to achieve their desired outcomes" (Jenkins 2020, p. 167). There are differing views as to the type of teacher agency enacted in schools (see Vahasantanen 2015) and as to whether teacher agency is even worth measuring (Oliveira 2012). Biesta, Priestley and Robinson (2015) in their paper on teacher agency seemingly suggest a "[re]turn to teacher agency" of late as education policy in the UK as elsewhere actively petitions teacher agency in "shaping [teachers and] their work and its conditions" (p. 624). This "renewed emphasis" on teacher agency is about reinforcing the "important dimension of teachers' professionalism" (Biesta, Priestley and Robinson 2015, p. 625). Importantly, Biesta et al. also assert that the "renewed emphasis on teacher agency raises a number of questions "partly about definition and theory, such as the question of what we mean by agency and more specifically teacher agency, and what it would mean for teachers to be active agents in and of their work" (2015, p. 625). There is no doubt that the concept of teacher agency is central to the "dynamic interplay" at work "in the reproduction of structural change aligning globalization-driven reforms" (Vongalis-Macrow 2007, p. 425) and the role teachers have in the new transformations of late hyper-modern capitalism. Contemporary educational policy "has focused on redefining teachers as adaptive and responsive professionals in the context of educational change as a constant" (Vongalis-Macrow 2007, p. 425), their "agential capacity" (Vongalis-Macrow 2007, p. 428) redefined through the obligations they are now exposed to as a consequence of the framework of practices constituted by the econo-technical authority of dominant policy rationality.

Despite the significant educational reforms of recent decades and their concomitant effects on teacher workload and agency, classroom teachers in our small-scale study viewed their role and work as important and worthwhile because it is ultimately "about making learning accessible and for me the learning of maths accessible to kids of all backgrounds" (Trevor – Mathematics teacher). That said, teachers also were quite sceptical of many of the

expectations of education policy and the assumptions it often makes about how classroom teachers do their work.

> You know, well, policy always has good intentions . . . people's heart/s is/ are in the right place . . . but in reality though . . . say for example, where policy might say "ensuring you engage all students" or "developing 21st century skills", often the reality to that is probably . . . or the expectation of you doing that are unrealistic . . . the realities of engaging kids to the absolute maximum all of the time in real life in classrooms are a bit "pie in the sky" I think.
>
> <div align="right">(Margaret – secondary school Humanities teacher)</div>

Trevor, a secondary school mathematics teacher similarly believed that "there isn't much alignment" between education policy and actual classroom practice. Trevor, as with Margaret concerns himself more with the role he plays around learning making sure that he is seen to be "approachable . . . with an open door . . . where my "philosophy" on teaching is about helping students reach their potential, particularly regarding their mathematics potential" (Trevor).

The demands of education policy ultimately require action by school staff, although policy enactment is dependent upon the varied inter-relationships and connections of inter-dependent actors. Education policies express processes and forms of practice and they "can be differently worked on and with" (Braun, Maguire and Ball 2010, p. 558). Trevor alludes to this by saying that policy is "sort of similar to theory . . . but there is theory and practice . . . and most learning for me as a classroom mathematics teacher occurs on the job". When we were speaking to Margaret about policy and the relationship to learning she pointed out that ". . . to engage the students is a key aim of mine as a classroom teacher . . . so I align and "follow" policy . . . I don't need to be told that" (Margaret). The specific and contextualized practices which frames how education policy often works is mediated from within, that is, at the school level. Margaret, a very experienced secondary school humanities educator of 40 years claimed that policy and how it is enacted in schools is "power misplaced . . . a concern with over-efficiencies . . . I'm not fussed, the younger newer teachers though, I can see struggle . . . they're often struggling . . . classroom management, other administrative expectations . . . they're over-whelmed" (Margaret).

As the site of major policy activity the classroom is increasingly the "high stakes" arena for the implementation and enactment of major politico-economic aims. The post-1950s era of a global economy and government support for the neo-liberal push towards unrestrained free trade alongside key educational changes which for classroom teachers has included the emphasis on strong accountability, standards and new performance related evaluative mechanisms has arguably re-directed education policy to "straightforwardly 'practical' aspects" (Braun and Maguire 2020, p. 434). The latter has included such things "as how a child's school day should look like and what can be done to close the educational achievement gap between rich and poor" (Braun and Maguire 2020, p. 434). It

has also focused attention towards data utility and how this can be exploited as a way of developing a nation's human capital through education and schooling with "tailored" and "personalised" learning experiences emphasizing "student growth". There will be more on the concept of growth in chapter seven as we return to deal with the concept of student growth and how it relates to learning and teaching practice. Margaret and Trevor both made reference to the concept/notion of student growth when interviewed.

> There is a big push now currently for personal growth, personal development . . . if you make kids happy everything will fall into place . . . but what about some of the learning needed? There is more to it . . . growth . . . than that.
>
> (Margaret)

> Growth seems to be talked about more these days although perhaps in regards to good character?? I tend to think about student growth from a point of view which encourages students to see the value in what they are learning.
>
> (Trevor)

> I'd like to think that is what I'm there for surely . . . i.e., facilitating student growth, particularly student intellectual growth.
>
> (Margaret)

The concept of student growth in recent years appears alongside two of the other important discourses involving schools and students, the so-called "master narratives" (Fisher-Ari, Kavanagh and Martin 2017, p. 256) of student learning and achievement. All three, that is, growth, student learning and achievement, tap into the fourth master narrative of "performativity, in which individuals [classroom teachers] are repositioned as subjects judged by their ability to perform and produce measurable results provided by market, economic-based governance structures" (Fisher-Ari, Kavanagh and Martin 2017, p. 256). All four concepts are construed as dynamic and active signifiers of educational performance, positioning classroom teachers as the change agents of reform.

Classroom teachers bring with them a "mix of personal and professional experiences and commitments" (Buchanan 2015, p. 701). The two teachers in our study likewise come from a variety of professional backgrounds and view their practice and indeed how they engage with education policy differently. The constant though is in how they meet head-on the dominant education policy discourse which has defined the teaching landscape in recent decades. The classroom teachers in this study were well-aware of the performance demands of accountability and the pressures of standardization and testing. Margaret for instance claimed that "teaching is now different . . . vastly different. The past was less prescriptive, there were less instructions from school managers. You weren't told

what to do as often . . . no . . . no, we were told, "teach about the Vikings" for example, or "teach about . . . you know, whatever . . .".

INTERVIEWER: "So, what has happened to teaching now then?"
MARGARET: "I think we've been over-burdened with over-sight".

Similarly, Trevor in his view about teaching now.

> "A great deal about teaching and the job of classroom teacher is to deal with and take the "hard knocks". There is a learning curve to teaching, particularly early in your career. Much of it is trial and error. There is less room to learn by your mistakes now maybe".
>
> (Trevor)

Research evidence from the extant literature suggests that the various interactions "between teacher identity and school culture" (Buchanan 2015, p. 714) can enable and also constrain teachers' agency. This was also evident in our study. Trevor for example made the point that:

> Numbers and data are increasingly important. Statistics is important. Outside policy-related pressure has affected what we do in classrooms and it did affect my teaching.
>
> (Trevor)

Margaret on this point about teacher agency and identity expressed similar sentiments in this regard around policy affecting practice. She tended to highlight her teaching approach emphasizing that her classes "are learning . . . they're doing their presentations on topics of their choice around The Vikings, The Black Death and so on. I try and accommodate all kids". Margaret also singled out beginning teachers for specific mention around policy affecting practice.

> My colleagues, the younger teachers, are quite nervous to make their own decisions around their teaching practice/s . . . yeah, especially the younger ones . . . they feel that they need to know it all.

Margaret also suggested that on occasions school managers or the Department of Education sends out confusing messages about a teacher's agency and sense of professional decision making.

> In some instances we have been very much instructed how to do our job, you know . . . this is the curriculum you must deliver and this is how you will deliver it, but then they'll [school managers or the Department] will say yes, of-course, use your imagination and creativity.
>
> (Margaret)

There are different ways in how the dominant education policy discourse/s of recent decades exert influence over teacher agency. Data from the two very experienced classroom teachers shows that whilst accountability demands, for example, are ever-present their influence is not simply accepted by the teachers. There are other mediating influences identified by Buchanan (2015, p. 714) which includes how "local schools and districts operationalize accountability demands and the kinds of expectations that they put on their teachers shape the ways that teachers respond". Beginning teachers are a case in point here.

Professionalization and the teacher "change agent" agenda

The constant in all current education policy attempting to control the epistemology of education with a quest for "science of education" has caused a shift in role of the classroom teacher in what is labelled a "knowledge economy". In an economy centred on knowledge as capital, education is called upon as the way of preparing "people better for work and working environments that are changing dramatically" (Griffin et al. 2017, p. 32). The notion of a knowledge economy "derives from the idea that knowledge and education can be treated as a business product, and that educational and innovative intellectual products and services, as productive assets, can be exported for a high-value return" (Ball 2008, p. 19). The responsiveness of education and teachers in particular is important as they will help cultivate the skills and capabilities of current and future knowledge workers. Ball's characterization of the knowledge economy references the changing nature of work where the exploitation of knowledge and information link in with technology as "the key factors of production" (Ball 2008, p. 19). This is a world where classroom teachers and the teaching practice/s they engage in should enable the realization of student potential that is relevant in a fast-changing global economy dominated by high-tech and rapid movements of finance. The dominant educational policy agenda of practical reform is about ensuring growth in student achievement and teacher impact is focused on improving school and student outcomes. The outcomes sought are geared toward economic development where "highly skilled and flexible human capital" (Ball 2008, p. 20) secures a nation's competitive advantage.

Performance data and verification processes are important here particularly as the education system is seemingly taking on more of the "economic work". The effectiveness and efficiencies of outcomes such that competitiveness is enhanced in a dynamic global economy is vital in this process of transformation.

> As a result, teachers and their work, education, and professional development have become central areas of national education reform initiatives in many countries as political authorities feel compelled to develop strategies aimed at "taking control" over educational outcomes and results.
>
> (Lilja 2014, p. 89)

Teacher professionalization, that is, the policy emphasis on re-structuring the notion of the "professional teacher" through various processes of accreditation, education/training, professional development, and induction link with the verification elements of accountability and New Public Management (NPM) in determinations of effectiveness and quality. This is about a form of professional governance "from above" involving the standardization of teacher work, and the implementation of performance-oriented accountability mechanisms – governmentality – including imposition of "deregulation and market-style solutions" (Lilja 2014, p. 87) in the field of education.

In canvassing aspects of professionalization with classroom teachers in our study, what stood out was the concern they expressed for students in their care. The care shown went beyond the simplicities around the teaching of "the basics" or ensuring that students were engaged in their schoolwork as part of "doing school" and working on their education as some sort of future material "good". The "skilling" of students was never mentioned other than by Trevor when he expressed the view that "it is important to help people become employable". Trevor is often phoned by local employers when students attend job interviews seeking his view as a referee on the student. Margaret for instance when asked about aspects of professionalization and viewing herself as a change agent stated "yes" to change agent "in the sense of having students be thoughtful . . . educating students about issues". Margaret went on to say "it is important to ensure that the time students have spent with you as the teacher has been useful. I like to encourage effort amongst students . . . effort that they see as worthwhile. I think this is important". On the "change agent" aspect specifically, Trevor stated "yes to a point. I tend to be very focused on helping students . . . particularly those that see no use or value in mathematics or think that mathematics is too difficult and that they can't 'get it' . . . I like to think that I help them to change and learn mathematics and also help them see that things can get better". When pressed about what Trevor was referring to about helping students see that things can get better he went on to say "well, being a teenager is hard . . . it will get better. Life will get better". Trevor then went on to talk about how he sees many of his past students in his local community that have now graduated from secondary school and they often talk to him and thank him for guiding them through difficult life stages. Trevor related that one of his students with a "troubled" life at the time when he taught her at school stated to him years later that she wouldn't have made it to where she currently got to in life without his encouragement and instilling in her a sense of perseverance in class which she then reflected on when things went somewhat awry again in her own adult life some years later.

Margaret and Trevor talked about how their work as classroom teachers extends beyond the imparting of skills and/or only thinking about post-schooling employment for their students. Caring about their students and being responsive and doing the right thing by them was as important. Professionalization issues and notions of "change agent" for both Margaret and Trevor signified to them at least that they engage in efforts to meet their students' needs as much as possible holistically. This involved thinking about their accountability as classroom

teachers beyond compliance and the core task and/or education policy impera-tive of improved learning. Trevor on this point:

> I often get asked this actually . . . you know, "what does this or that mean to you as a classroom teacher?", particularly the issue of accountability and what this means and how it has affected me in my work. Well, classroom teach-ers are always accountable . . . their professionalization means that they are always accountable . . . safety for instance . . . we're accountable . . . so . . . teaching . . . we're accountable . . . curriculum, we're accountable . . . in our parent interviews . . . we're accountable. You know, we can only provide the opportunity or opportunities . . . after . . . after that, it is up to the students. You cannot force people to learn.
>
> (Trevor)

Margaret stated that she "never complains about the kids . . . I'm about engaging the kids". She went on to say, "Professionalization . . . you know . . . you do your best . . . you . . . you try and have a teaching practice or style or approach which allows all students opportunities to learn and develop. This is what is important to me". Margaret went on to emphasize her role as a teacher and her concept of education which she viewed as something that is comprehensive in scope beyond "school work". Schooling and education for her means assisting students in terms of preparation for life as well.

> There is the job thing . . . you know, the everyday classroom work of the teacher in the form of working through the curriculum that we need to . . . and also the other things that help you enrich your life . . . make the most of your leisure time . . . this is very important . . . you know . . . appreciate other things to life . . . theatre . . . reading . . . gardening . . . and so on.
>
> (Margaret)

Margaret emphasized the all-rounded integrated nature of her work as a classroom teacher particularly in terms of how she thought about her teaching practice.

> Very important . . . I want them [students] to be able to think, be creative, articulate . . . and knowledgeable.

This also involved educating students so that they can "investigate, put together and present . . . investigate, research and . . . public speaking skills. This means putting an argument together . . . this is extremely useful and necessary in every-day life" (Margaret).

  The workforce re-modelling connected to the professionalization agenda in the field of education has focused the attention of classroom teachers "on the 'core task' of improving teaching and learning" (Carter, Stevenson and Passy 2009, p. 127). Teacher effectiveness is restricted to enhancing student perfor-mance only as understood and measured by standardized testing. The education

policy interest in and concern with the individual classroom teacher raises issues of management and control. Professionalization in education has exacerbated focus on "performance targets" and "outcomes" re-directing thinking about the field. Systemic reforms and a "change in culture" in how classroom teachers go about their work has shifted thinking about teaching so that it "becomes defined as a narrow focus on technical improvements to secure higher scores in standardised tests". (Carter, Stevenson and Passy 2009, p. 132). Nonetheless the classroom teachers in our study tended to reinforce the "caring" aspect of teaching, that is, in "the sense that effective teaching involves the teacher integrating the academic and pastoral needs of students" (Carter, Stevenson and Passy 2009, p. 130) despite a professionalization push which tends to focus only on how teachers and their teaching practice/s improves student achievement (narrowly defined). Margaret's comment below provides a glimpse into the narrowed management and supervision of the educational space which professionalization has afforded: "Too much oversight . . . prevents me from being the teacher I want to be". Margaret goes on to say:

> Leave me alone . . . you know, I can do it . . . without a doubt there is more oversight now. They're on our back more now . . . they want us to follow prescribed criteria . . . no acknowledgment of the teacher professional as autonomous worker.

Margaret's comment highlights one of the major negatives of professionalization for classroom teachers, their perceived sense of a diminished professional authority and autonomy in terms of pedagogical expertise (see Ingersoll and Collins 2018).

Autonomy

The extant research literature attests to teaching's dynamism highlighting the complex nature of the work (Sutherland, Howard and Markauskaite 2010). Evolving pressures of expectation characterize teacher autonomy of late where accountability measures force rethinking of teaching practice particularly in terms that express regulatory frameworks of standardization and the "knowledge" amassed through system prescribed professional learning. An emerging paradox surrounds this development where systemic reforms have at one level asserted the professional autonomy of classroom teachers regarding their pedagogical expertise, whilst at the same time increasing managerial controls and transferring responsibility of educational outcomes to schools and classroom teachers. This mismatch or discrepancy is between an aggressive governing science of education regime composed of "instruments, procedures, techniques and tools" (Simons 2007, p. 532) used in the main to enforce optimum performance and practice versus a science of education which must go beyond the basic habit of proficiencies. Both are entwined in a "struggle over the teacher's soul" (Ball 2003, p. 217) meaning a battle for the experiences classroom teachers enact and

are involved in as part of their work and which ultimately define what it means to be a teacher.

Roosevelt and Garrison (2018), following Dewey, argue that all "teachers have a soul and all teaching is soulful" (p. 177). By this they mean that the soul of teaching emanates from tuning into "the needs, desires, and interests of unique individuals participating in specific situations" (Roosevelt and Garrison 2018, p. 177). Classroom teachers with "soul" inspire, their pedagogical work projecting their autonomy beyond technocratic expertise reflecting the moral and ethical commitment of their actions. This is about classroom pedagogic action "that is independent, intelligent, connected, agile, and able to creatively transform (that is, *inform* [italics original] the physical, biological and social world in which it is operative" (Roosevelt and Garrison 2018, p. 181). The autonomy of the "soulful" teacher moves outside the relationships and subjectivities of an enforced performative identity characterized by the competition of education system markets and managerial efficiencies. It is an autonomy that when fully expressed provides careful attention to each student and informs teaching practice in the immediate situation and for the long term. The ethics of professional judgement emanate from this form of autonomy where the teacher's attention drawn towards specific challenges finds "the balance of creativity and structure that will optimize student learning" (Sawyer 2011, p. 2). This is about a deliberative method of pedagogical inquiry where the ends and means of classroom teaching practice link.

The link between pedagogic ends and means is tied to activity as practice and task. The pedagogic method of action with purpose surrounding practice and task functions beyond mere activity, that is, the rudimentary filling up of classroom time and is guided by an "intelligent direction, which takes cognizance of conditions, observes relations of sequence, and which plans and executes in the light of this knowledge" (Dewey 1929, p. 106). It is perhaps found in the words and sentiments of Trevor our study's secondary mathematics classroom teacher participant when he says "if you want to get better as a classroom teacher you must take risks". The relationship to teacher autonomy expressed here is about exercising professional pedagogic judgement that taps into confrontation between the uncertain and complex rather than the simplistic and/or routine. This is a purposive expression of ". . . professional responsibility understood as response, responsiveness, and accountability both within the profession and to the profession's publics" (Stengel 2010, p. 24). It is also about reinforcing the purpose and project of an education "that has, by its very nature, alterity in its groundroot" (Stengel 2010, p. 25). An important part of the alterity mentioned here is in the meaning that teaching imparts. If as Biesta claims "teaching is to have a *meaning* [emphasis original] beyond the facilitation of learning" then it "has to be understood as something that comes from the *outside* and brings something *radically new* [emphasis original]" (Biesta 2013, p. 52).

Dewey in *Democracy and Education* (originally published in 1916) spoke about the "vice of externally imposed ends" which "has deep roots" (Dewey 1985, p. 115). The governmentalization imposed by forms of standardization reflect a "distrust of the teacher's experience" (Dewey 1985, p. 116) meaning

a narrowing of the possibilities teachers have in demonstrating "how they relate to the formal limits of their work – namely, curriculum goals, the administrative apparatus and relevant laws" (Raaen 2011, p. 630). If anything, the governmentalization imposed by forms of standardization represents a grab for the "decoupling of theory and practice" (Buchanan 2020, p. 131) so that the pedagogy involved in teachers' work is compressed. Indeed we recognize that the entire epistemology of education has been significantly shifted from a holistic view which is inclusive of the teaching profession to a situation where teachers are now subservient to an authoritarian structure. In his time, Dewey (1985, p. 114) identified that "education" as a construct, "has no aims. Only persons, parents, and teachers, etc., have aims". When teachers are denied a role in having aims for education themselves and only can enact the purposes of another, then Dewey likens this to being a slave. Whilst advocates of standardization may point to the advantages associated with system agreed outcomes centred on student understanding after a set period of schooling, that is, "learning the basics", the risk/s for classroom teachers is around the de-skilling involved in merely meeting compliance measures. A flow-on effect of the latter is to stultify teaching reducing it in scope. The development of "skills" is synonymous with education although as Buchanan points out the "focus on literacy and numeracy is no doubt a positive, but this focus" to the exclusion of all else "risks becoming an end in itself, rather than establishing these basics as keys to further knowledge and reckoning" (Buchanan 2020, p. 91).

A key aspect in this ongoing autonomy struggle for classroom teachers' concerns control over the knowledge that constitutes the field surrounding teaching practice. The process of de-professionalization where teachers have submitted to the regulatory frameworks (self and otherwise) of government and quasi-government organizations has re-shaped teaching practice forcing modifications in line with the educational change of marketization, that is, strong economic and financial considerations prioritizing measurement and inspection. Valuable and trustworthy forms of knowledge production align with the "scientific" model of research where the planning for and control of student achievement becomes the target of classroom action. Continuous evaluation cycles of demonstrated improvement for both schools and teachers guide evidence-based reviews of teaching practice transforming "education into a centrally measured, scalable output of performances, which can be described through a complex set of achievable competencies" (Hartong 2016, p. 215). The benchmarking and "best practices" of standardization and "standards then serve as a qualitative framework for otherwise autonomous practice" (Hartong 2016, p. 215) in schools.

Conclusion

Chapter four has canvassed the notion of hysteresis and the crisis politics which dominate the direction of education. The chapter has in short illustrated the field-specific struggles of classroom teachers and how they work in an era where their agency, autonomy and professionalism are under scrutiny if not outright

attack. By drawing on interview data from a small-scale study of two practicing classroom teachers which focused on their autonomy and the relationship to education policy, the argument about teachers operating under a broader politico-economic context of change provides indication of their classroom situated counter responses. The two classroom teachers we interviewed as part of our small-scale study into teacher autonomy spoke about their concern for the students in their care. This concern was of an intellectual kind in the sense that both teachers wanted their students to get something valuable out of their lessons and also pastoral. The teachers, Margaret and Trevor, also spoke about how in their view a great deal of education policy today is about the perceived restriction of their classroom-based autonomy and indeed that education policy rhetoric and expectation often misalign with classroom reality. This is despite classroom teachers such as Margaret and Trevor seeking to fulfil elements of policy around for example the dynamism of learning and sense of heightened engagement expected today so that all students learn to their fullest potential.

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5 John Dewey, teachers and the educative experience today

Introduction

Through our inquiry into the epistemology of education, we now explore contemporary education knowledge forms investigating the nature of teaching in terms of its epistemic expression/s as either the pursuit and fostering of knowledge, knowing as an aesthetic disposition of *being*, or simply the transmission of information. To assist with this and to question the role of classroom teachers in the contemporary school-system as raised in the previous chapter, we highlight the importance of John Dewey in the field of education and his idea of the educative experience. In this chapter, we consider the arguments involved in the increasing technization of teaching where audits of classroom performance and practice divert attention from finer aspects of pedagogy and education more broadly, involving the embodiment of critical consciousness through relational experiences between teachers, students and the world. An important aim of this chapter is to re-engage with the complexities of education, learning and aspects of "becoming", highlighting the contestable nature of knowledge. We make the argument that a failure on the part of the schooling system and education policy in particular to manage impeding external influences detracts from the potential of a genuine educative experience and in eroding the educative effectiveness of classroom teachers. In addition to identifying specific elements which make the teaching profession unique, we also consider teaching as a knowledge form and how it contributes to the development of students over time.

John Dewey

Dewey's influence in the field of education has only been significant in terms of theorizing and experimenting yet has had startling minor impact on public policies and practices throughout schooling. His beliefs about education that he outlined in *My Pedagogic Creed* includes insights such as education affecting "the social consciousness of the race" such that individuals can "progress and reform" society and where teachers therefore are involved "in the formation of the proper social life" (Dewey 1972, pp. 84, 93, 95). Hickman (1998, p. xv) concludes that

Dewey's creed therefore focuses specifically on "the development of the learner's capacities and interests in ways that empower her or him to assume the role of constructive participant in the life of the wider society". The types and forms of educational experience encountered by students in school are central and the need of a theory of experience which is embodied by the teachers themselves is what should guide and drive the process and growth of education. This is because education properly conceived involves the formation and growth of human qualities, intellectual and emotional, for which it is the teachers themselves who are most familiar with, and attuned to, each individual in their care. In stating his creed, Dewey espoused criteria of experience that provided for the genuine development and growth of habits which "consolidate the thoughts, feelings, and actions that constitute human conduct" within an ideal political and social aspiration (Garrison 1998, p. 63). An important aspect of this need of a theory of experience is a conception of growth as a "kind of continuity" (Garrison, Neubert and Reich 2012, p. 44) which expresses itself through independent critical inquiry. Along these lines Dewey advocates for an appropriate configuration of experience which distinguishes the educative experience from the non-educative or mis-educative experiences.

> The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative. Experience and education cannot be directly equated to each other. For some experiences are mis-educative. Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience.
>
> (Dewey 2008, p. 11)

To this extent then all educational experiences should value the continuum of personal first-hand experience within the social group, insofar as that students can respond to the formation of particular attitudes, dispositions, habits and beliefs and then build on these in a fashion which "modifies in some way the quality of those which come after" (Dewey 2008, p. 18).

Social reconstructionism and a commitment to progress in terms espoused by a burgeoning early American Pragmatic and Progressivist tradition is what fuelled Dewey's sense and belief in the processes and methods of the experience continuum involving the "scientific" or experimental disposition of trial and error.

> In Dewey, we see a dominant theme of American progressivism and the New Deal but also of twentieth-century liberalism more broadly: the belief that there is an intelligence, or "method of intelligence," that can be applied to solve social problems, which are themselves primarily economic in nature. It is this intelligence, which makes no pretense to knowledge except as a result of a pragmatic experimentation, that captures the spirit of democracy more than any philosophical or institutional analysis.
>
> (Watson 2020, p. 24)

Dewey championed the value that experimental science was having for the physical advancement of the society of his day. He therefore, argued for it, as a habit and disposition, for both students and teachers as they experienced education and indeed for all of society as the public sought to renew and progress all aspects of social and political life. He declared that "[t]he general adoption of the scientific attitude in human affairs would mean nothing less than a revolutionary change in morals, religion, politics, and industry" (Dewey 1988, p. 115). The science of education that Dewey espoused ventured towards an amalgam between the established ideals of the scientific "method" which is not so much of a method per se like a recipe, but involves "interest in systematic, empirical investigation" (Lagemann 2000, p. 19) whilst simultaneously embracing reason and morality. The scientific study of education for Dewey aligned with a belief in the importance of disciplines such as psychology and philosophy where both link with education to better understand the nature of mind and of human individuals as social beings. Whilst theorizing and the abstract have value, both alone will not suffice. The experimental for Dewey accords with his belief in the meaningfulness contained within the experiences of any and every particular situation. Each situation affords experiences of some form but for Dewey his concern for experiences centred towards those which usher in the conditions for a "meaningful mode of engagement" (Pappas 1998, p. 115) which is able to bring about an ideal society for all of its members. Hence is continued advocacy for democracy and rejection of all forms of authoritarianism. Hence 'his' call for educational experiences that contains "direction, illumination, inspiration, and motivation" (Hickman 1998, p. 116) for the individual which is preferable to that which doggedly holds to a closed rigidity containing precepts formed by others and imposed on young unformed minds. Lagemann (2000, p. 50) connects this clearly to the overall political project of Dewey's by stating;

> Instead of approaching education as a means for training inborn capacities, Dewey approached education as a means for nurturing new social capacities, especially the skills, orientations, and knowledge necessary to building and sustaining a democratic community.

All this links with the progressivist ideal characteristic of the American tradition of which Dewey, although being occasionally critical of, was nevertheless a key proponent. Progressivism was against all fixed and external governing principles because these tend to resist openness and experimentalism which are essentially important for movement and change. Such a disposition is vital to progress, which is reliant upon the social "intelligence" of individuals working together and directed towards dealing with matters at hand rather than become caught up in dogma (see Watson 2020).

Personal experience for Dewey is central for education to have any value because it necessitates individual "inquiry into the values that guide and constrain our habits of action" (Garrison 1998, p. 64) thereby making activities intelligent and purposeful. Dewey (1991) acknowledged the role of a holistic approach to

life and our first-hand experience of it, both biologically and culturally as if these were two dimensions of a matrix in which we are embedded. He was critical of isolating various bodies of knowledge and understandings from one another as this led to a loss of appreciation of the whole, arguing that the "world seems mad in pre-occupation with what is specific, particular, disconnected in medicine, politics, science, industry, education" (Dewey 1981, p. 224). Hence he was very wary about reducing social phenomena to mere metrics. He warned that "[i]nsistence upon numerical measurement, when it is not inherently required by the consequence to be effected, is a mark of respect for the ritual of scientific practice at the expense of its substance" (Dewey 1991, p. 205). For Dewey, the complexity and holistic nature of living must be accounted for when designing curricular experiences because at its core is the impact these have on human development.

> Experience is an organism-environment interaction. What we immediately experience is existence. However, the meaning of existence (a given situation or the facts taken from it) is a sociolinguistic construction. No one can create from nothing. Meaning is created from our immediate experience of existence.
> (Garrison, Neubert and Reich 2012, p. 63)

The growth that comes from education is about acknowledging the meaning that stems from all experience through a continuum in the sense of doing and being done to, that is, the connections between the intellectual and/or cognitive and the social and environmental.

> Educational experiences exemplify continuity and growth. Experience inscribes itself upon the body as habits and every experience modifies these habits. Once modified, our habits alter how we anticipate, recognize, and respond to future experience.
> (Garrison 1998, pp. 66–67)

The educational situations crafted for their educative experience and value should contain the relevant connections which help transact a reconstruction of habits for growth. That is, educational experiences are transformational of the entire being of the students because the development which occur is "the consequence of establishing continuities within experience" (Garrison 1998, p. 67) and so cannot be reduced to the mere positing or banking of knowledge and skills. In summary, the educative experience is fundamentally ontological rather than epistemological.

   The concept of transformational growth has relevance here in that the educative experience is about taking the immature individual and moving her forwards towards a newly constituted outlook or horizon. The potentialities of the educative experience matters to the extent that it encapsulates the evolving development and adaptation of an individual in light of her first-hand experience.

> Every experience is a moving force. Its value can be judged only on the ground of what it moves toward and into. The greater maturity of experience

which should belong to the adult as educator puts him in a position to evaluate each experience of the young in a way in which the one having the less mature experience cannot do. It is then the business of the educator to see in what direction an experience is heading.

(Dewey 2008, p. 21)

Inherent in the educative experience is the purpose, design and plan of action – method – for the effective organization of subject matter such that it connects with and allows for the intelligent and flexible fostering of individual capacities. Whilst this is about the individual and the specifics needed to assist her with her learning it is also aligned to Dewey's notion of a continuity of experience, meaning we grow via the disturbances associated with situational moments and instances.

> Within the unity of the act, cognitive meanings emerge through reflection on precognitive activities and feelings. We learn when we establish connections between what we do and what we suffer as a consequence of our effort to coordinate our activity. This is continuity. Learning requires the reconstruction of our habits, the development of our character, and growth.
>
> (Garrison 1998, p. 67)

Education for Dewey "functions as a catalyst for growth" (Ralston 2011, p. 353), and it is in the quality and nature of the experience which determines the form of the transforming educative process.

Dewey, the educative experience and teachers

When Dewey makes reference to the educative experience, he is explicitly engaging in matters of thinking and knowing as attributes of *being*. That is, inquiry "establishes a knower 'in person', residing in . . . the knowing" (Dewey and Bentley 1991, p. 127). For Dewey, the sense-making that comes from analysis is the work of inquiry such that rather than culminating in a production of knowledge the knower establishes "warranted assertions". To this extent, Dewey's theory of knowledge around the educative experience differs from conventional epistemological thinking regarding cases of "certain" knowledge or "justified true belief". The Deweyan conception of the educative experience is about harnessing the world as a whole which acts as "subject-matter for knowledge" inseparable from mind "because mind has developed *in* [italics original] that world; a body-mind, whose structures have developed according to the structures of the world in which it exists" (Dewey 1981, p. 211). The Deweyan solution to the mind-body problem is the basis from which to conceptualize events and causes in a way that apprehends meaning within the educative experience. It is also the means through which explication, meaning and verification can be derived bridging as needed the theoretical and the practical. Through this we can appreciate that the educative experience is an ". . . aesthetically consummated experience"

(Alexander 1998, p. 13) connecting mind-body in that it is about a continuity of learning as growth through a rich qualitative integration which reveals and enlightens.

Importantly, the educative experience is also about a process which is dependent on particular conditions. Dewey writes of the "educative process" as something dynamic and *continuous* in that it is best conceived as the interaction which occurs between the poles of learning. At one pole is the "immature, undeveloped being" whilst at the other is the set of stable and solid "aims, meaning, values" (Dewey 1902, p. 236) socialized and reflected in the established community. The work of the educative process is to actively engage the learner bridging this gap between the poles as it may, and where individual growth framed by the conditions which help facilitate development is allowed to emerge.

The significance of the educative experience for teachers centres upon a clear conceptualization of aims. Dewey spends considerable attention on the nature of aims and their significance in education, suggesting "aims relate always to results" and that teachers need to grapple with an important question, that is, "whether the work assigned possesses intrinsic continuity" or if it is simply a rudimentary "serial aggregate of acts" (Dewey 1985, p. 108) with little educational value or meaning. If properly and "intelligently" conceived, the aim underlying an educative experience reinforces "its value – its function in experience" because there is reason for "a basis upon which to observe, to select, and to order objects and our own capacities" (Dewey 1985, p. 109). Activities such as these are indicative of mind "for mind is precisely intentional purposeful activity controlled by perception of facts and their relationships to one another" (Dewey 1985, p. 109). The mindful work of teachers in planning for the educative experience captures the essence of the functions that Dewey claims typifies mind.

> To have a mind to do a thing is to foresee a future possibility; it is to have a plan for its accomplishment; it is to note the means which make the plan capable of execution and the obstructions in the way . . . it is to have a plan which takes account of resources and difficulties. Mind is capacity to refer present conditions to future results, and future consequences to present conditions.
>
> (Dewey 1985, p. 110)

Dewey was clearly against the reification of mind into an organ and instead promoted it as an activity as per "to mind". Classroom teachers do this type of work when planning and preparing for student learning. Indeed, the two teachers at the centre of our study into teacher autonomy in chapter four and in the answers they gave to some of our questions about their teaching practice alluded to exactly this. There are "certain things to do, certain resources with which to do, and certain obstacles with which to contend" (Dewey 1985, p. 113) when teachers plan and prepare. In other words, teachers work in and with the conditions presented to them and should according to Dewey plan for an experience which (1) aligns with their students' needs, (2) is readily taken up by students themselves because

they can see its relevance and worth and (3) lends itself to making connections from either the abstract to the real or vice versa. An educative experience that does this signifies intelligent activity. It symbolizes that an education "is literally and all the time its own reward" so that "no alleged study or discipline is educative unless it is worthwhile in its own immediate having" (Dewey 1985, p. 116).

There is an important distinction to be made here. Hildebrand (2016) argues that Dewey attached prime value to experience in order to preserve continuities and to defend receding to false dichotomies and dualisms. For Dewey, there is no "authority (supposedly) beyond experience which can be appealed to for criteria (guides, aims) regarding truth, goodness, beauty, and so on" (Hildebrand 2016, p. 75). Experience "had in situations" can act as the conduit for learning of "skills, theories, facts, values, and so on" (Hildebrand 2016, p. 75), and it is "the situation" intelligently conceived which teachers must plan for and be aware of that facilitates education. Therefore enacting educative experiences as outlined by Dewey, requires teachers, as educators, to be willingly experimental with exploring how to engage students meaningfully, based on core aims which embrace a holistic view of social ideals regarding what is "good" or of most value for each participant and for the community as a whole.

A technology of teaching?

In contrast to the sort of epistemology encouraged through Dewey, there is a prevalence now in the field of school education of numeric data and the associated determination this data use enables around teacher effectiveness that has a significance beyond simply shaping the nature of teaching situations and practices. Zubhoff (2019) for example, argues that in opposition to Dewey current authorities do believe that experience can be reduced to metrics and data. She references Google's six declarations of which the first states, "We claim human experience as raw material free for the taking. On the basis of this claim, we can ignore consideration of individual's rights, interests, awareness, or comprehension" (Zubhoff 2019, p. 178). Similarly, with implications for education, Lewis and Holloway (2019) for instance have shown that data used as an advanced "technology of governing" particularly around teaching has imposed particular conceptualizations of teacher professional performance and/or professional judgement. The work by Lewis and Holloway (2019) shows that classroom teachers focus more now on representations of themselves as "data-driven" conceiving of themselves and of their work around teacher effectiveness "solely through the lens of data" (p. 45). This has had flow-on effects where educators understand and talk of the notion of the "good and effective teacher" "through the lens of data" (Lewis and Holloway 2019, p. 45).

Whilst data generation and its management and use has always been part of the school and broader education scene stretching as far back as the early twentieth century (see Lagemann 2000), its influence in the fields of education/teacher education has never been as prolific. Datafication, which is the large-scale adoption of "digital technologies, software packages and their underlying standards,

code and algorithmic procedures" (Williamson 2016, p. 123) exerts a new kind of control on education and the teaching situation. The algorithmic capture of education and the work of teachers occurs through the "emerging digital data practices of data analysis, visualization, prediction and prescription . . . many based on functional principles and discursive logics derived from social media and big data" (Williamson 2016, p. 138). An important function of this "new logic in the governance of education" (Takayama and Lingard 2019, p. 450) which incorporates a systems thinking "expertise" into how educational matters and in particular teaching practices are configured as problems for solution (see Selwyn, 2015) is to utilize artificial intelligence and forms of automated thinking as supports for decision-making around strategies to improve student learning outcomes. The work of Sellar and Gulson (2019) illustrates how machine learning and computerization is involved in broader educational work, for example prediction in the form of future demand for schools and estimating future performance of students particularly around the predictive analytics associated with "optimisation" for the "direct impact on the improvement of outcomes" (Sellar and Gulson 2019, p. 12). This involves utilizing the "technology" of "data science" (Sellar and Gulson 2019) in the form of statistical evaluation and assessment as part of a diagnosis and formative feedback loop. Datafication via the construction and holding of knowledge about education systems is not simply about the representation of "educational settings and subjects as data sets" (Williamson 2016, p. 124) the aim being more about data working on those settings and subjects to change practices. This speaks as much to the pedagogical and educational value and nature of educational work through what "data science" and its techniques of control seek to modify and regulate as it does about the contributions of education to economic development. In other words there are both behaviourist and audit/review threads to datafication which at its most extreme displaces "the pedagogic expertise of educators while valorizing technocratic models of the pedagogic interaction as measurable and modifiable events" (Williamson 2016, p. 139). This comes with its own set of problems around the control and purposes of education including its effects on teachers and students (Williamson 2016). Whilst automated machine-oriented thinking may be used by those advocating for it as "an instrument of optimisation", it potentially opens the way for the creation of "new values and conditions for thought (Sellar and Gulson 2019, p. 14) in the governance and practice of education.

Personalized teaching and learning

An important development in recent years in the field of school education is the renewed emphasis on personalized learning and teaching (see Roberts-Mahoney, Means and Garrison 2016; Hartley 2009). With roots in the child-centred progressivist education tradition, personalized "tailored" approaches to teaching and learning are about the focused application of pedagogy to individual student learning needs. As an emerging educational movement, personalization "is often presented as a means for promoting efficacy and equity whereby all students are

viewed as unique individuals with the capacity to learn if provided with the right conditions and tools" (Roberts-Mahoney, Means and Garrison 2016, p. 406). Students in effect have "customized" needs and they require relevant support to advance their learning in a world that is changing fast, is unpredictable and is also beset by uncertainty. Impactful teaching should be "tailored" to the individual student and focused on improving specific student outcomes in terms of achievement. The basic principle at work here aligns with the "long standing progressive ideal that students should be able to pursue advanced learning that is relevant to their own lives and personal interests" (Roberts-Mahoney, Means and Garrison 2016, p. 411). It also reiterates an important central tenet of the child-centred notion of education this being the concept of growth.

Whilst framed in progressivist child-centred educational terms and along these lines mirroring core beliefs in individual freedoms and respect for autonomy, contemporary personalization, according to Hartley (2009), is about "a new mode of governance which is complementary to the existing bureaucratic and market-driven modes of governance" (p. 427). A primary goal of the new personalization in school education is the cultivation of a modish style of pedagogy and learning. The contemporary incarnation of personalization in the field of school education borrows from marketing theory in that it positions both students and teachers as consumers and producers. Needs and solutions in meeting needs are co-produced. Students and teachers co-produce tailored solutions to fit individual learning needs which in Hartley's view means that personalization is "*explicitly* [emphasis original] consumerist and (co-) productive" because the mainstay of how it is conceived in terms of both education policy and direction "is more narrowly and avowedly economic" (2009, p. 429): For the most part personalization in the field of school education connects with other post-Fordist and instrumental performance-oriented terms such as creativity, adaptability, risk-taking and so on (see Hartley 2009). With an emphasis on personal choice and individual decision-making, personalized teaching and learning accords with the disruptive tendencies evident in knowledge economies where niche "just in time" and "on demand" production has dispensed with mass Fordist style economic approaches. Education has been an essential element in this change in economic direction which Boltanski and Chiapello (2007) have characterized as the "new spirit of capitalism" immersing as it has "the components of assessment, teaching and learning, curriculum entitlement and choice as well as school organisation and partnerships beyond the classroom" (Maguire, Ball and Braun 2013, p. 324).

The personalization movement and the notion of tailored teaching and learning it could be argued reflects more broadly some of the main aspects of the marketization and corporatization of schooling in that it positions "education within a reductive set of economic rationalities that emphasize human capital development" (Roberts-Mahoney, Means and Garrison 2016, p. 406). Personalized teaching and learning connects with narrow technicist beliefs about knowledge where education is focused on "the acquisition of discrete skills and behaviour modification detached from broader social contexts and culturally relevant forms of knowledge and inquiry" (Roberts-Mahoney, Means and Garrison

2016, p. 406). A pedagogy imbued with a reductive set of learning aims disconnected from the cultural and biological matrixes described by Dewey, such that teaching is about the "deliverables" of training future workers is more easily amenable to quantification. Teaching has now morphed into furnishing students with a narrow range of vocationally oriented twenty-first-century skill sets. The performance of both teachers and students is cultivated for continuous improvement and bound to the competitive needs of economic growth. The diagnostic and technical is then a fixture of this form of education. The contemporary take on personalized teaching and learning draws heavily upon some of the newer influences in the field of education, for example data analytics and other aspects of technology based data intelligence.

On first glance, the diagnostic and technical may appear antithetical to personalized and tailored teaching and learning. Personalized teaching and learning however gives attention to uniformity particularly around the nature of the educational experience in terms of the body of knowledge (curriculum) considered important and valuable and also assessment. Learning is often configured in compartmentalized ways and individual student progress is assessed against system wide prescribed "standardized" benchmarks. Cast in this way teaching and learning are about delivering growth that is measurable, clearly obtained and uniform across all students regardless of context. Maximizing learning effectiveness is through a standardized and verifiable approach to pedagogy. Continuous improvement, innovation and evaluation are interwoven with the emphasis on the evidence of data and the downgrading of teacher expertise (see Roberts-Mahoney, Means and Garrison 2016).

Dewey and what is worth knowing

As we revisit Dewey in light of our contemporary practices, we recognize a central feature in his work when it comes to the type of knowledge considered important and useful and that is that it should emphasize creative activity (see Stengel 2001). By creative activity Dewey denotes knowledge which fosters experience by way of an "at work" immersion in action. In applying this principle to school knowledge the more that (1) it has relevance to students' personal lives and (2) promotes a sense of communal/shared responsibility in its solution, it is all the better in fulfilling the true nature and spirit of school and of education. The knowledge constituted in an education is then the knowledge intelligently developed by "the possibilities inherent in ordinary experience" (Dewey 2008, p. 61). The personal and experiential subtended by a problem-solving rationale based on real-life questions "inevitably develop the mental inquisitiveness, moral sensitivity, and method of intelligence" (Stengel 2001, p. 118) that "is the Deweyan linchpin when it comes to education" (Stengel 2001, p. 109). Whilst there is an integral bond between personal experience and education, the quality of the former depends upon the terms of its continuity and interaction (see Seals 2004).

The two concepts of continuity and interaction are synonymous with the Deweyan outlook about what is worth knowing. Dewey held that knowing, knowledge

and intelligence remain distinctive entities although they each work towards fostering learning and deriving meaning and significance from what is learnt.

> Knowing, knowledge, and intelligence are distinct for Dewey. Knowing is a process of inquiry (specific instances of applying oneself to solving problems); knowledge constitutes the stable outcomes of inquiry; and intelligence is the result of developing and accumulating capabilities to act (that is, to inquire) in specific ways.
>
> (Boyles 2006, p. 64)

The classroom experience is the context in which students should engage in inquiry, working with knowledge claims. Teachers have a special role to play in this regard particularly with respect to "the situation in which interaction takes place" (Dewey 2008, p. 26). Teachers (educators) are charged with the responsibility of engendering an environment of inquiry for the active engagement of students, the latter concerned with a "never-ending search for meaning" (Boyles 2006, p. 65) as a form of deliberation focused on the stability afforded the curious inquisitor. The educator then must plan for the "objective conditions" (Dewey 2008, p. 26) which best provide for the educative experience encompassed by continuity and interaction.

> It includes what is done by the educator and the way in which it is done, not only words spoken but the tone of voice in which they are spoken. It includes equipment, books, apparatus, toys, games played. It includes the materials with which an individual interacts, and, most important of all, the total *social* [italics original] set-up of the situations in which a person is engaged.
>
> (Dewey 2008, p. 26)

The educator, cognizant of the continuity and interaction needed as the foundational criteria of the quality of experience, is open to the "attentive care" (Dewey 2008, p. 30) which must be shown in determining the conditions of the learning situation ". . . which will interact with the existing capacities and needs of those taught to create a worth-while experience" (Dewey 1997, p. 45). The classroom teachers in our small study seemed to mirror this in their work with students (see chapter 4).

But the worthwhile educative experience is one analogous to the aesthetic and intellectual. In his *Art as Experience*, Dewey (1989, p. 21) argued for both without one usurping or negating the other for ultimately the "matter of both emphases in experience is the same, as is also their general form". However, it is through the aesthetic that a sense of the whole is best maintained, as he argues;

> The work of art operates to deepen and to raise to great clarity that sense of an enveloping undefined whole that accompanies every normal experience. This whole is then felt as an expansion of ourselves.

Indeed as Alexander (2013, p. 3) acknowledges that "Dewey's primary concern, the philosophy of experience" could be "explicitly stated, in terms of aesthetic experience." An important criticism Dewey makes about contemporary modern life and by extension the propensity towards the inordinately instrumentalist and programmed is the diminished conception "of the human encounter" (Alexander 1998, p. 3), where our observations of the world and our attentiveness of it is impoverished. There are two points worth noting about the importance Dewey attaches to the meaning and value found in the experience of the aesthetic and intellectual. First, Dewey "holds that human life is guided by a desire to experience the world in such a way that the sense of meaning and value is immediately enjoyed" (Alexander 1998, p. 3). Understanding builds by way of "naked" interaction, the first encounter capturing and then maintaining a continuity of interest over time. Second, what distracts or acts as a barrier to the aesthetic and intellectual is "our utilitarian obsession with means apart from ends" (Alexander 1998, p. 4) which lessens the holistic nature of human experience. Dewey in this regard warns against a "pure pragmatism" concerned only with the uncritical evaluation of the "ends" of knowledge.

The relevance to education then is manifest in a pragmatic connection between the role it has in the formation and function of democracy. It consists of a particular contribution, a type of "mutual interdependence" (Višnovský and Zolcer 2016, p. 56) between the two. Dewey's conception of education maintains a strong social emphasis, his "philosophy of the social" necessitating the intelligent deployment of education for democracy. Unity is expressed through the demonstration of growth via inquiry and conversation where "(1) the meaning of democracy (understood philosophically as a way of life) for education, and (2) the meaning of education (understood philosophically as a social process) for democracy" (Višnovský and Zolcer 2016, p. 56) enable life lived intelligently. Schools are crucial in this regard as they are the means through which provision for the nurture and enrichment of the human condition, that is, socially and ethically link with the body of knowledge (subject matter) of human history. So, whilst the school provides the conduit for the transmission of the subject-matter of education, this being the "bodies of information and of skills that have been worked out in the past" (Dewey 2008, p. 5), it too must be concerned with the vital integration that acknowledges and deals with the "typical conditions of social life" (Dewey 1909 in Hickman and Alexander 1998, p. 248).

Dewey believed in the importance of the school beyond the rudimentary and the customary as depicted through traditional approaches. An example of his criticism of accepted and imposed rules and standards includes.

> The subject-matter of education consists of bodies of information and of skills that have been worked out in the past; therefore, the chief business of the school is to transmit them to the new generation. In the past, there have also been developed standards and rules of conduct; moral training consists in forming habits of action in conformity with these rules and standards. Finally, the general pattern of school organization (by which I mean the

relations of pupils to one another and to the teachers) constitutes the school a kind of institution sharply marked off from other social institutions.

<div align="right">(Dewey 2008, p. 5)</div>

An important consideration for Dewey around the concept of the school involves accepting that it should as far as it can in terms of its general scheme, eschew "imposition from above and from outside" (Dewey 2008, p. 6). His philosophy of education "offers us a vision of a society self-consciously striving to enable its members to live fully educative lives" (Campbell 2016, p. 39). The blueprint for seeking to achieve this form of democratic society hinges on seven progressive principles which illustrates Dewey's commitment to development of mind and self.

> To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teachers, learning through experience; to acquisition of isolated skills and techniques by drill, is opposed acquisition of them as means of attaining ends which make direct vital appeal; to preparation for a more or less remote future is opposed making the most of the opportunities of present life; to static aims and materials is opposed acquaintance with a changing world.
>
> <div align="right">(Dewey 2008, p. 7)</div>

The work of school is the work of democracy because to live a "full life" means development of self as a social being which requires the freedom to experience *living* with others in shared activities with shared purposes.

Educational aspects of becoming – capabilities

Transformative learning, that is, education which is centred on transformation as part of a process of student growth and becoming emphasizes an understanding of the relationship between students exposure to subject content knowledge in schools (i.e. "opportunity to learn") and student performance directed towards acknowledging that all students can learn and have the opportunity to succeed. The challenge for teachers is to align the teacher-pupil relations so that teaching and schooling makes significant differences to achievement. This merits understanding(s) of teacher performance and pedagogical practice(s) beyond the purely operational. This means that classroom teachers work effectively, authentically and collaboratively at planning for the pedagogical encounter that Dewey calls a "situation" which develops capabilities.

When Dewey speaks about capabilities, he is making connection to a democratic education which recognizes and "teaches individuals to reach for new information and use it as a force for new capabilities in their lives" (Glassman and Patton 2014, p. 1356). The new information sought is part of a skill development process where instrumentalist "utilitarian" knowledge is only the first most rudimentary of steps towards a fulsome democratic education where

the classroom is the vehicle allowing students to engage "with various types of knowledge in participatory problem-solving situations" (Glassman and Paton 2014, p. 1361). This means respecting "creative pedagogical processes and practices" (O'Donnell 2013, p. 266) where the pedagogic situation is at its most meaningful for students, that is, learning environments which are venturesome (see Hogan 2013).

Importantly, educational aspects of becoming which foster capabilities rely upon the central Deweyan category of "experience". The educative experience when at its strongest point allows for a "freedom of intelligence" by emphasizing "the active part of individuals [students and teachers] in taking decisions" (Leßmann 2009, p. 458) particularly about education and what is worth learning and knowing. Choice plays a significant part in this especially in regard to the set of interactions of experience expressing the educational situation, that is, the objective and internal conditions which affect reception.

> Thus, in Dewey learning takes place in a sequence of situations. The situations are linked through the principle of continuity in experience while the principle of interaction directs our attention to the unique combination of objective conditions in a situation that distinguishes it from others.
>
> (Leßmann 2009, p. 458)

Development of capabilities is then an active process of becoming the significance of which is found in the value of activity in reference to "a pedagogical encounter that develops one's love of a subject" (O'Donnell 2013, p. 282). Teaching practice is an activity with its own unique features answerable to the family of practices that define it. Learning experiences that intrinsically motivate students prioritizes student achievement and so the work of teachers which "involves developing processes, materials, questions, practices, and dispositions that make such encounters more likely" (O'Donnell 2013, p. 282) are the mainstay of opportunity.

This is to suggest a purpose of education beyond mere normalization and socialization. It is not only about acknowledging current and existing social/cultural orders and norms but also about working to help learners better understand and develop themselves as persons. In this way, education and the work of classroom teachers together make contributions to the development of self for encounters with the world that respects the ongoing nature of education and of the educative experience.

Conclusion

Chapter five has sought to position the work of contemporary teachers against the Deweyan precept of the educative experience. This is so that the argument about a science of education which is currently dominating the epistemology of education, is re-engaged with from a standpoint which acknowledges the complexities of teaching and learning and a holistic appreciation of all cultural and biological life. An important missing aspect from the contemporary policy

compulsion for the constitution of a "science of education" is the relational understanding that must be nurtured between teacher and student. This requires time. It also requires letting go of the false assumptions and analysis which comes with a reductive "scientific" conceptualization of education. This is so that the experiential nature of education in the sense that opens students up towards a holistic development of their learning may become possible.

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6 Teacher identity and expertise – why it matters

Introduction

In the previous chapters, we have come to appreciate the importance of teachers within the epistemology of education. The role of teachers can be formed by the dominating discourse and its associated governmentality and also the teachers themselves have a role in how they perceive their role. This chapter now covers the important concept of teacher identity and connects it to what is valued in terms of teacher expertise and practice in contemporary school-systems across the globe. The chapter grapples with the role of the educator as either primarily being an art or a science to explore specific teacher characteristics directly associated with enhanced learning outcomes to question the development of a teacher, which is closely aligned with the hallmarks of performativity (Ball 2003) and effectiveness. This is to suggest that important teacher characteristics which contribute to student achievement such as creativity, curiosity, collaboration, critical thinking and so on, whilst arguably evident in teacher practices across most education jurisdictions, are impeded by the at times inflexibilities of current curriculum and assessment reforms with implications for teacher identity. The chapter then moves on to argue that this has consequences for the type of teacher one becomes.

Teaching – what is it?

One of the most significant developments, which has occurred in the epistemology of education over the last few decades, is a shift of focus from "education" to that of "teaching" and "learning". One major consequence of this shift is that teachers and teacher educators are no longer encouraged to participate in the contested field of the aims of education, which are intrinsically related to moral and political concerns. Instead, the focus is now on teaching and learning as processes only, where the energies and attention of teachers are to focus on getting these processes right, rather than give any consideration to what the purposes of such processes ought to be. This shift of focus has been described by Biesta (2010, p. 14) as "learnification" which he uses to emphasize that this transformation has encouraged teachers to assume that their work is amoral and apolitical.

Consequently, there has been a separation of the *end purposes* of education from the *means* of pursuing these (see Webster 2020).

There are various and contested understandings of teaching but all seem to indicate some involvement with intelligent and purposeful activities designed to encourage and guide learning. It is very rare to see educators such as Biesta (2017) who offers the challenge to free teaching from learning. Predominantly therefore, *good* teaching is generally understood to lead to significantly improved learning and growth. However, as we examine learning and growth themselves more closely (which we do in the following chapter) we can see that they are also heavily contested concepts and depend upon the kinds of experiences the learner undergoes which may or may not include the presence of teachers. Greenwalt (2017, p. 518) defines teaching as "the ability to assist learners in organizing, directing and maximizing the stream of developing life experiences" demonstrating that teaching is not always synonymous with being present and guiding students but it can be the activity of intelligently designing and providing experiences for learners. There is an absence of universal agreement on what constitutes good teaching in the extant research literature, although there is general acceptance that some specific teaching approaches work better than others for enhancing learning. However, there is great variety on how learning is conceptualized which therefore influences how teaching might be understood. Hattie (2009, 2011) for example, acknowledges this broad scope and is clear that his own work narrows the conception of learning to "surface" types rather than deep conceptual, because surface learning lends itself to being more "visible" and therefore "measurable" and so emphasizes such things as the "basics" of literacy and numeracy. Quite often *good* teaching is closely associated with the expressions of effective or quality teaching. Effective and/or quality teaching tends to rely on specific pedagogical approaches that are prescriptive in nature and seemingly narrow in scope. Efforts to characterize good teaching as effective or of quality generally rely on simplifications where aspects of teaching, including the process/es used to make determinations of effectiveness and/or quality limit how we express teaching practice holistically (Webster 2017). An important limitation is in the incorporation of observation/s where teaching is looked at "from a distance" and in isolation. This problematic situation introduces a further dilemma into how we can capture or express teaching, that is, the distortions that accompany overly simplistic readings of teaching.

The tensions inherent in defining teaching connect to broader debates about classification, that is, categorizing teaching as either an art or a science or as part art or part science. This has been debated for a long time as is evidenced in William James's book *Talks to Teachers on Psychology* published in 1899 in which he discusses this tension between teaching being an art an informed by the "science" of psychology. The teaching as art categorization "contributes to a holistic view of the world" where the act of teaching is regarded "as more than merely a sum of its occupational parts" (Hansen 2004, p. 119). This means that teaching and the work of teachers is not simply defined by the basic labour of planning, preparation, management and/or assessment. Teaching may be comprised of technical

aspects, although pedagogic expertise "draws together aesthetic, intellectual, and moral dimensions of the endeavor" (Hansen 2004, p. 119) which stem from a particular form of sensitivity attuned to thoughtful consideration about the needs of learners. On the other hand, the purely competent or scientific "teaching as skill" categorization focuses solely on enacting where learning is a function of a technical performance-oriented activity defined generally by a set of "best practices" and data informatics. It is this latter categorization which lends itself to the contemporary science of education approach to defining effective and quality teaching practices and it also largely determines the epistemology of education and lays the foundation for how teacher identity is to take shape. Standardized testing and the achievement data that stems from it is used to inform classroom instruction in this categorization of teaching. Gottlieb (2015) contends that there are two major flaws with this view of teaching. First, technical portrayals of good teaching "miss the aspects . . . involved in instilling a lifelong curiosity" (Gottlieb 2015, p. 59) in students. Second, the technical sense of good teaching reinforces what Gottlieb suggests are "assumptions made in early (and failed) attempts at Artificial Intelligence (AI)" which to put it simply "assume that knowledge of how to do something consists in the acquisition or having of certain rules or maxims" (Gottlieb 2015, p. 59).

That the scientific or technical view of teaching is currently on the ascendance which is probably due to reformist beliefs in instrumental rationality and the technical "fixes" populating the "what works" educational policies of recent decades (see Biesta 2007). An important and central characteristic involved is an identification of rules or principles of teaching practice that if skilfully applied not only work to enhance student achievement, but they have applicability across all contextual school-based settings. This "behaviouristic assumption" that teaching practice is composed of practical "isolated techniques" (Gottlieb 2015, p. 63) the importance of which is found in their classroom application overemphasizes skilled performance. It is dependent on core practices which are amenable to technical proficiency standards supposedly describing teaching. Good, effective and quality teaching aligns then against "evidence-based approaches to professional action" (Sinha 2013, p. 260) where teachers are expected to follow rules and procedures. Biesta claims that this is the scientific "technocratic model" of education and teaching where "the only relevant research questions are questions about the effectiveness of educational means and techniques" (2007, p. 5). In this way teaching is simply about replication of specific behaviours and actions limiting the opportunities teachers have as professional practitioners in making "judgments in a way that is sensitive to and relevant for their own contextualized settings" (Biesta 2007, p. 5). Learning is then bound up in the effectiveness and quality of the processes used to depict teaching.

> What has been jettisoned is precisely the understanding of teaching as an educational practice that is a moral endeavor, which acknowledges and retains as necessary teachers' ability to make professional normative judgments about

the appropriateness of the ends themselves and the desirability of the means used to achieve a given end.

<div align="right">(Sinha 2013, p. 261)</div>

The scientific "teaching as technique" direction solidifies what counts as good, effective and quality teaching minimizing the ambiguity involved in learning and the possibility of improvisation in teaching practice.

Carr has written about the "performative character of teaching" (2003, p. 21) that the instrumental or technicist characterization depicts so readily. The aims of teaching when viewed in purely technical performance-oriented terms gears towards causal considerations of learning meaning that productive teaching is deemed successful if it culminates in student achievement gains discernible via standardized testing. Teaching in this sense adheres to scientific approaches of pedagogic practice which emphasize competence in both teachers and students. In this view teaching and the entire pedagogic enterprise is about "essentially a matter of skill-acquisition" (Carr 2003, p. 23) so that the scientific basis of any educational inquiry is fixed as a question of technical ability especially regarding teaching practice and matters of curriculum. Consequently, as teaching is reduced to the mere application of skills and strategies, then educators do not have the need to have aims or be theoretically oriented to engage with and make judgements in the art of teaching. Thus the epistemology of education is reduced to a means of application.

The scientific conception of teaching with its promotion of systematic or prescriptive knowledge is at odds with the "artisan model" of practice enunciated by Michael Huberman. In his now famous depiction of the independent classroom practitioner as skilled artisan/craftsperson, Huberman built an argument for the improvisational in teaching. He did this because in Huberman's view definitive "links between instruction and outcome" (Huberman 1995, p. 196) have remained somewhat indistinct. So, whilst some research into education and teaching continues to offer up the latest regarding how to make classrooms and entire education systems more effective and successful (see Hu, Peng and Ma 2021), Kennedy reminds us that for Huberman teaching practice is "largely idiosyncratic and non-theoretical" (2002, p. 355). Improvement in terms of effectiveness if it arises comes "more from continual tinkering than from the kind of systematic analysis of underlying patterns that academicians value" (Kennedy 2002, p. 355). In other words, there is a craft to teaching practice that is rooted in how the practitioner engages with it in terms which connect to their knowledge and expertise, that is, their own particular epistemology of education.

Knowledge and expertise of teaching

Knowledge and expertise of teaching are often defined by dominant discourses, that is, the language of a constructed authority and legitimacy typified by particular beliefs and values. It can and often has "an *inhibiting, delimiting effect* [italics original]" (Moore 2004, p. 29) which works to serve particular interests

constraining how we think about aspects of the social world. The discourse surrounding teacher standards is such an example in that standards of teaching practice are invariably presented as lists of what competent teachers are expected to do as part of their classroom teaching practice and do not invite discussion.

> In terms of lists of teaching standards or competences especially – when they are presented as competences and standards (rather than, say, as assessment criteria) – we may say that, unless deliberately contextualised alternatively, such lists will be apt to be read by students and teachers as attempted articulations of eternal truths rather than as selections that create truths and mask their presuppositions.
> (Moore 2004, p. 30)

Typical of the discourses surrounding the knowledge and expertise of teaching are according to Moore several dominant configurations of what signifies the "good teacher"; the competent craftsperson discourse, the reflective practitioner discourse and more recently the charismatic subject discourse (see Moore 2004). Moore suggests that all three of these discourses about the knowledge and expertise of teaching have some foundation in idealist connotations of "self" with links to a "scientific" view of teaching and learning "that is circumscribed by a notion of closure and the naming of parts" (Moore 2004, p. 7). Whilst the competent craftsperson and reflective practitioner discourses align with "the more mechanistic, technicist tendencies" (Moore 2004, p. 8) of modernist "scientific" views of teaching and learning, it is perhaps the charismatic subject discourse according to Moore which may act to remind us of teaching's artful side, in other words, "teaching as craft". This nonetheless doesn't in any way lessen what is in many respects a major problem with each of these discourses which if adopted essentialize knowledge and expertise about teaching moving "from being merely beliefs or views about teaching to discourses through which teaching is fundamentally perceived, experienced, spoken about and understood" (Moore 2004, p. 8).

In effect then the missing element in the move towards dominant discourses of knowledge about teaching is acknowledgement of the tendency towards simplistic generalization. The search for the scientific and empirical identification of axiological principles of teaching practice centred on some causal mechanism that if properly codified and utilized by classroom teachers is if anything about the definitive understanding of student behaviour. This serves as the pedagogic model upon which all learning outcomes depend.

(1)   Scientific knowledge about teaching – measurement and evaluation

The scientific basis to knowledge about teaching centres on an assumption of causality. What is of significance is that the quantification and the large-scale adoption of statistical analysis gives effect to a numeric representation of education's actual purpose. The implementation of metrics as an appropriate scientific methodology for establishing knowledge about teaching includes a regularity view of causation.

This means that knowledge about teaching, that is, the practices that *cause* desired learning outcomes, can be readily prescribed. The metrics involved in measurements, calculations and comparisons "articulate education ontologically as they establish certain causal and temporal relations between (for instance) student performances and school resources or teacher skills" (Madsen 2021, p. 65) and for that matter the entire identity of teachers. An inherent aspect involved in metricated analyses of teaching are the definitions of variables of evaluative interest, for example, descriptors of effectiveness, quality, achievement or growth and so on. Definitions used in measurement of teaching and learning represent the "approximations of an underlying order" (Gottlieb 2020, p. 43) and can only hold if applied formally and systematically. In doing so doubt is erased, that is to say, the knowledge and actualization of effective and quality teaching is rendered possible as a single output having eradicated all other accounts.

Such an approach to knowledge about teaching reifies "a view of teacher practice in which events follow logical rules, behaviours follow cognition and judgments follow from abstract and articulable reasons" (Gottlieb 2015, p. 501). The problem of effective and quality teaching in this scenario "becomes a problem of propositional knowledge – adequate knowledge of correct criteria will yield a flawless evaluation, adequate knowledge of the situation and the rule book, as it were, will yield flawless practice" (Gottlieb 2015, p. 501). The scientificity involved in metricated approaches of education re-define the concept of teaching to that of "a clinical practice of standardized knowledge, and prescriptive knower dispositions" (Simmie, Moles and O'Grady 2019, p. 55). It does so in order to eliminate doubts about practice or put simply remove the ambiguities associated with what happens in classrooms. In other words scientific knowledge about teaching aims for predictive accuracy where teaching practice is reduced to "function optimisation" (Fazi 2020, p. 10).

Here then is the distinction that the presumed "scientific" knowledge of teaching relies upon. It takes the seemingly inexplicable and seeks patterns of meaning – causation – parsing teaching events and actions into discrete units to then re-assemble them into a seamless whole. Relevance is attributed as a type of "rule of thumb" where the manipulations of statistical inference remain hidden. The scientific knowledge of teaching seeks order out of disorder so that it can offer up a rationalized view of teaching and learning. Data and information is key where "shades of grey" reinforcing ambiguity collides against only what is deemed "right" or "wrong". In this way, the discipline of education is then configured as a problem to be solved so that accounts of educational performance dominate. Put another way, the inter-relationships inherent in teaching cohere with the performance of a set of pre-defined rules that if consistently and correctly followed should (will?) result in efficient and quality exchange.

> In education specifically, "performance" has come to form the basis of teacher reviews, the measurement of a school's success in examinations, and the form of assessment in many of the student's scholastic endeavours.
>
> (Locke 2015, p. 251)

From this it seems the teacher that draws on improvisation is differentiated from the "rule-follower", the latter basing their actions on the "tested" and "true" rather than the imprecise and imperfect.

The selectivity involved in a methodology of educational calculation is about the countable formalizations of an abstraction, that is, teaching. Scientific knowledge of teaching practice is a form of "risk management" where the calculation of educational performance – the something of central concern – is calculated and revealed as part of an ordering system, meaning the technical expressions (mathematical/statistical formulae and signs) which point to effectiveness and quality. This if anything suggests that the calculation of performance given via scientific accounts of teaching are assessments of system stability. When practices of calculation are performed on the classroom teacher practitioner s/he is decentred as a human subject and technical artefacts are delegated functions with the capacity to calculate, resolve, predict and evaluate. The process of explication stresses the stable figurations of science where the life-world of classrooms becomes a re-focused technical re-configuration framed by the orderings and efficiencies of mathematical and scientific constructs.

Typical of the frameworks that define the ideas, information and rules that form the structure of scientific knowledge about teaching practice are features with an applied focus. The over-arching connecting thread of a scientific framework depicting knowledge of teaching practice is teacher performance although with especial significance attached to teacher development. Aspects that form the structural frameworks of scientific knowledge of teaching practice include the key determinants of effective teaching. Determinants of effective teaching are encapsulated in teacher professional standards organized usually around core domains or dimensions, for example, professional knowledge, professional practice and professional engagement. Measures of teacher effectiveness typically centre on teacher evaluation systems comprising classroom observation/s of professional practice, student surveys and value-added measures.

Observations

A method of teacher evaluation long used in assessing performance is observation. Used initially in process-product studies of teaching practice (see Gate and Needels 1989), classroom observations of teaching are now widespread (Cohen and Goldhaber 2016). Typical methods of observation of teacher performance focus on type/s of behaviours used in classrooms, teacher use of classroom time, instructional strategies used in the classroom and studies of classroom management (see Pianta and Hamre 2009). Principals often use "walkthroughs" as a form of observation where impromptu inspection of teaching practice/s involve general assessments about teaching effectiveness and quality. Typical observation instruments involve rubrics with scales of quality. Walkthrough models vary in schools that use them. Some well-known walkthrough models used in the USA include the McREL Power Walkthrough and the UCLA Center X Classroom Walk-Through, both of which tend to focus on identifying effective instructional

strategies and assisting teachers enhance their practice. Walkthroughs can also be designed locally and can involve a senior administrator (Principal) or be more collegiate where an experienced teacher peer/colleague walks through the classroom. Frequency and duration also varies. Kachur, Stout and Edwards (2013) in their work on walkthroughs in schools throughout the USA have shown that walkthroughs can occur as frequently as once per week in some schools or once to twice annually lasting for several minutes or perhaps up to 15 or 20. Data generation hinges on noticing or what Kachur et al. term gauging the "standard set of look-fors based on leading research for effective instruction" (2013, p. 39). Typically the effective instruction research literature uses signifiers linked to generic teaching practices considered essential in student achievement gains such as the structuring of content, questioning, modelling, instruction and interaction, teacher expectations and so on (see Muijs et al. 2014).

Observations of teaching practices in the USA form a core part of the teacher evaluation policy landscape and are increasingly tied to the hire and dismissal of teachers. The observation process is generally now more uniform and there is also the training of observers ("raters") with some research showing that observation data is now more consistent, transparent and specific (see Goldring et al. 2015). Despite this researchers suggest that "given their prevalent use, we know surprisingly little about the statistical properties of classroom observations in consequential personnel decisions" (Cohen and Goldhaber 2016, p. 379). An inherent problem with observations is that they only offer a glimpse into teaching practice and "any specific observational instrument" only captures "a small portion of the broader construct of "teaching quality", a construct around which we do not yet have consensus" (Cohen and Goldhaber 2016, p. 380). There is also the broader although more involved question around understanding and recognizing the demonstration of quality teaching practice and indeed of observers ensuring that they have the capacity to delineate "potentially meaningful distinctions" (Cohen and Goldhaber 2016, p. 380) when it comes to classroom practice/s. Germane to the classroom observation exercise is a clear definition of what actually and exactly is to be measured, accurate use of data, the consideration of contextual variables in the observation, and their relevance and importance, and rater bias.

Student surveys

There is evidence to suggest that student perceptions of their learning environments are both reliable and predictive of effective teaching practices (see Wallace Tanner, Kelcey and Ruzek 2016). Students are not trained raters of effective teaching practices and so base their perceptions of a teacher's performance on the classroom experiences that they are exposed to. In this way, student feedback is often predicated on key questions about their teacher's performance in classroom instruction focusing typically upon criterion-based measures connected to motivation, engagement, care, classroom management/control, stimulation and so on (see Steinberg and Kraft 2017). In the USA, student survey/s of teacher performance are typically based on the Tripod survey, popularized in recent years by

the Measures of Effective Teaching (MET) project where the domains of effective teaching are expressed around the markers of care, control, clarify, challenge, captivate, confer and consolidate, the 7C's of effective instruction (see Ferguson and Danielson 2014). Whilst student surveys of teacher performance are increasingly used to rate the classroom instruction of teachers there are still unresolved alignment issues particularly around "whether student raters have the same interpretation of survey items across different contexts (allowing for the comparison of teacher instructional quality across classrooms, schools, districts, or even states) and why and how student characteristics influence interpretations of items" (Wallace Tanner, Kelcey and Ruzek 2016, p. 1862).

Value-added measures

Policy reforms emphasizing evaluations of teacher performance now routinely use the notion of "value-added" as the indicator of student achievement growth as determined by standardized tests (see Goldhaber 2015). Value-added models (VAMs) of student achievement growth "isolate and measure teachers alleged contributions to student achievement on large-scale standardized achievement tests as groups of students move from one grade level to the next. VAMs are, accordingly, used to help objectively compute the differences between student's composite test scores from year to year, with value-added being calculated as the deviations between predicted and actual growth (including random and systematic error)" (Sloat, Amrein-Beardsley and Holloway 2018, p. 404). meaning the numeric assignation of teaching and associated effects on learning. This technicized statistically laden style of education research is about validating teaching quality. It depends heavily upon "holding constant" (see Skourdoumbis and Rawolle 2020) many of the random actions that occur within classrooms and the socio-structural aspects outside of classrooms that impact education.

    The extant research literature on VAMs ranges across (1) their statistical/ technical composition and by extension their usefulness in indicating education system productivity to (2) critique. Value-added modelling may illustrate teacher variability although extrapolating this as a "true" and reliable indicator of performance remains problematic. Scores from value-added modelling "suffer from high variance and low year-to-year stability as well as an undetermined amount of bias" (Braun 2015, p. 128). In other words, for value-added modelling to hold or be used for evaluation purposes a series of ideal conditions must be met. VAMs in theory could be used to evaluate teacher performance if as Linda Darling Hammond suggests:

- student learning is well-measured by tests that reflect valuable learning and the actual achievement of individual students along a vertical scale representing the full range of possible achievement measured in equal interval units;
- students are randomly assigned to teachers within and across schools – or, conceptualized another way, the learning conditions and traits of the group

of students assigned to one teacher do not vary substantially from those assigned to another; and

• Individual teachers are the only contributors to students' learning over the period of time used for measuring gains.

Of course, none of these assumptions holds, and the degree of error in measuring learning gains and attributing them to a specific teacher depends on the extent to which they are violated, as well as the extent to which statistical methods can remedy these problems. (Darling-Hammond 2015, p. 132)

This is why researchers often caution against the sole adoption of "value-added" as the measure of teacher performance and as Braun points out "they should not be given inordinate weight and certainly not treated as the "gold standard" to which all other indicators must be compared" (2015, p. 128).

(2) Craft knowledge

Teachers' craft knowledge pertains to the knowledge teachers have developed as part of enacting their work. It is the practical-problem solving and the "know how" that the individual teacher practitioner brings to their work in terms of how they think through and then act in situations that may arise as they go about their work. Craft knowledge "encompasses the wealth of teaching information that very skilled practitioners have about their own practice. It includes deep, sensitive, location-specific knowledge of teaching, and it also includes fragmentary, superstitious, and often inaccurate opinions" (Leinhardt 1990, p. 18). Lee Shulman (2004) characterizes teacher craft knowledge in terms of the "wisdom of practice" meaning that practitioners possess particular types of knowledge about their vocation which enables them to do their job. An important aspect connected to the wisdom of practice notion in a field such as education is the ethical and moral commitment to the scholarship of teaching and learning. Leinhardt suggests that craft knowledge is "contextualized knowledge. The contexts are sometimes clear but more often murky" (1990, p. 19) and in a field such as education a natural tension exists between theory and practice. Teachers are "schooled" and prepared for their work via higher learning in universities so they are exposed to theory however "teachers also appear to learn in their profession and to communicate with their colleagues and others in the language of craft and practice – in fact, in the language of the particular" (Leinhardt 1990, p. 18). The notion of craft knowledge and the wisdom of practice is perhaps most apt when thinking about or confronted by dilemmas which may arise as part of daily practice. The craft knowledge of an expert classroom practitioner may be drawn upon when dealing with "the complexity of classroom life . . . that teachers face as part of their everyday work as they set out to support the participation and achievement of all . . . in their classes" (Black-Hawkins and Florian 2012, p. 569).

Kennedy (2002), in her study of knowledge and teaching, found that teachers associate craft knowledge of their work in terms of learning from classroom experiences. She found specifically that the craft knowledge most valued by teachers

was assessment focused drawing upon their professional expertise around "evaluative judgements" and the "success or failure of their practices rather than by an awareness of their own in-the-moment deliberations" (Kennedy 2002, p. 360). In other words there is a reflection component to craft knowledge where teachers engage in self-initiated review and critique of their work.

> Teachers, like doctors, already possess a great deal of craft knowledge – a mixture of expertise, theories, propositions, and tacit knowledge applied in the daily conduct of their practice. They have developed it by dealing with students who come from varying social and economic backgrounds and who have different motivations, attitudes, abilities, and cultural experiences. Teachers account for these differences in their teaching while simultaneously juggling multiple tasks and classroom routines. They pace a lesson so that it fits the time allowed. They keep order. They pass out papers, guide discussions, address the needs and questions of individual students, soothe frustrations, and quell conflicts. They take mental notes: What elements of a lesson are the hardest? What aspects need more time or less? What is being understood? Which students need what kind of help? What explanations seem to work and for whom? Usually, though, craft knowledge is confined to isolated classrooms, where individual teachers keep a tight grip on instruction and student learning.
>
> (Burney 2004, p. 527)

Craft knowledge derived from "on the job" experience mainly focuses on assisting teachers engage learners, the major motivation being "dissatisfaction with events and a desire to not repeat the same mistakes again" (Kennedy 2002, p. 362).

Developing teachers – performance characteristics for a new "creative" age

The new political economy of teacher knowledge and the link to evaluation processes reinforces the changing role of classroom teachers. The individual development of students especially with regard to their orientation towards a fluid and precarious employment market has broadened responsibility on individual teachers and schools. The learning needs of students as individuals are at the forefront of how teachers plan for and prepare their teaching, recognizing that they must be responsive at individual student, classroom, school and community levels. Development of teacher knowledge and skills that in the research literature suggests has a direct association between student, teacher and/or school outcomes hinges on specific traits germane to teacher quality and effectiveness. Eleven of these traits have been identified and include cognition, social and emotional competence, self-efficacy, communication, motivation, cultural competence, personality, self-reflection, collegiality, and attitudes, beliefs, and expectations, and values, morals and ethics (see Clinton, Aston and Koelle 2018). Whilst each of these traits is thought to contribute to learning outcomes, cognition, according

to Clinton, Aston and Koelle (2018), "is best considered as a broader category comprising several characteristics" (p. 20) including creativity which is central to the contemporary performance education policy discourse of recent times.

In the field of education creativity is often spoken of in terms of a key twenty-first-century skill synonymous with notions of "creative economies, innovation, and innovative science" (Perry and Collier 2018, p. 26). The quality and effective teacher is someone with the creative capacity to move with the flexible change needed in the education and training of students as future twenty-first-century workers. Whilst performativity "in the form of targets, testing and assessment are mandatory" (Troman, Jeffrey and Raggl 2007, p. 555) in schools, creativity in teaching practices is equally as important as it is about making learning relevant to students especially as the knowledge industries of the twenty-first-century economy are about the tangible realization of creative labour power. A recent study by Anagnostopoulos, Wilson and Charles-Harris (2021) for example has illustrated amongst other things, that teachers value quality teaching beyond simply base technical effectiveness, ascribing "impassioned creativity" (p. 9) as something inherently important in what it means to teach well. The Clinton, Aston and Koelle (2018) study into the characteristics of effective teachers mentions research into creative teaching practice. It suggests that the extant research literature defines teaching as creative "when it combines knowledge in a novel or unique way and introduces new processes to cultivate cognition to get results such as advanced or improved student learning" (Clinton, Aston and Koelle 2018, pp. 20–21). Teachers are creative if they are seen to be "innovative, having ownership of knowledge, exercising control over teaching processes, and operating within broad range of accepted social and cultural values" (Clinton, Aston and Koelle 2018, p. 21). Creative classroom teachers have "strong moral purpose, strong emotional investment, and are student-centred and encourage possibility, thinking and inclusivity in their classrooms" (Clinton, Aston and Koelle 2018, p. 21).

The organizational and economic innovations of recent decades of which creativity and links to productive capacity is but one feature of the new economic representation of capital expansion, press into existence the effectuating projective teacher. An important part of the creative turn for teachers means assembling and making intelligible to students the fragmented mechanisms which compose the "new rules of the game in the economic world" (Boltanski and Chiappelo 2005, p. 103). That is to say, the effectuating projective teacher encourages in students new conceptualizations of the world and community favouring the exploitation of opportunism as a guiding principle with students "able to find a place in a wide variety of situations, of which market transactions are only one possible scenario" (Boltanski and Chiappelo 2005, p. 355).

In such a world classroom teachers as the effectuating projective workers of knowledge economies not only scope creativity, that is, within the dimensions of product, project and impact, they must deliver the operating plan of learning so that all students regardless of context and/or personal circumstances improve in measurable ways. This is about cultivating in a continuous way, modes of creative

operation, and new rules of educational conduct where even formalization of "in-the-moment" classroom improvisations form an essential part of an adaptive and innovative system of performance. The work of teachers has the educational effect needed only insofar as learning is countenanced in terms of acceleration and attainment. This particular point is especially important because contemporary education policy expects classroom teachers deliver on equipping young people with the skills and knowledge to transact and negotiate their way through a complex and interconnected globalized world.

Teacher identity

Teacher identity is a central feature in how the work and role of classroom teachers is conceptualized. It has several iterations one of which links with the teacher as professional characterization which is a historic view of the teacher, the latter conceived in terms of carrying specific work-related attributes – core pedagogic and curriculum knowledge, skills, competencies – whilst the other holistic view involving teacher identity is the contemporary "teacher as a whole person" characterization. This more recent view of teacher identity ". . . emphasizes teachers' own meaning making processes within multilayered contexts, non-linear identity development, and its connection to various psychological constructs and contextual dynamics" (Hong, Cross Francis and Schutz 2018, p. 243). Interest in teacher identity has relevance for how the field of education deals with and understands broader questions about classroom teachers surrounding instructional/pedagogic practice/s, teacher effectiveness, decision-making, personal and professional well-being, motivation and so on. Three specific themes capture important aspects of teacher identity in the present juncture; agency, emotion and instability associated with change (see Hong, Cross Francis and Schutz 2018).

Each in its own way connects teacher identity with some of the pervasive dilemmas which classroom teachers now confront especially when their professional sense of self and their expertise may conflict with contemporary education policy demands around aspects of curriculum and its implementation, teaching practice, assessment and so on (see Stillman and Anderson 2015). Restrictive education policy contexts which emphasize hard high-stakes accountability, standardization and competitive comparison mean that teachers either accommodate or reject policy-related mandates (see Coburn 2004). Research by Stillman and Anderson has shown that classroom teachers regardless of the confines of education policy are active agents that can draw upon their expertise and "established practice to make sense of policy-related demands" (Stillman and Anderson 2015, p. 739) reinforcing their professional capacity as pedagogues. This means that for teachers willing to see themselves as active pedagogic agents such as the two teachers that were part of our study on autonomy (see Chapter 2) willing to use adaptive design approaches which is supportive of their instruction can potentially benefit student learning (see Stillman and Anderson 2015).

Conclusion

Throughout this chapter, we have considered how the role of teaching, like education, has been contested in the past, but now more recently through a metrics approach disguised as "science" is dominating the discourse through its own parameters by which the discourse itself claims are uncontested. This dominating approach of using metrics to expunge any contestability to goals of success and efficiency, strongly influence teacher identity along with the knowledge and expertise of teaching because both are important in the development of classroom teachers. We argue that education policy tends towards a technical rendering of teacher expertise, even though there are fuller and integrated elements of the latter that potentially take into account and is expressive of the agentive and adaptive characteristics of classroom teachers. The adaptive element of contemporary teaching now means that teachers are expected to engage in what is loosely called "innovative" elements of practice, but these fall exclusively within the current discourse of "scientifically" managed metrics.

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7 Growth in and for what?

Introduction

In this chapter, we focus on the concept of student growth and argue that policy-makers have deliberately sidelined the more authentic and holistic counter narratives and conceptions of learning growth characterized by the progressivist and critical fields of pedagogy. This sidelining has occurred through the epistemology of education taking on a more "scientific" character as per the previous chapter. In this chapter, we revisit the Deweyan conception and meaning of growth asserting the intrinsic worth and value in intelligence, especially social intelligence, with an eye to that which is demonstrably democratic in nature and form. In arguing this we explore the notion of "authentic pedagogic practice" to suggest that there is a depth and scope to contemporary teaching and learning which is primarily existential and aesthetic but often missed by the constructed performativity mechanism of high-stakes testing. The chapter points towards what is worth learning and why it connects ultimately to student growth. It reinforces the centrality of cognitive, social, emotional, spiritual and developmental supports as core to the concept of student growth something perhaps under-played in current education policy-making.

Growth and proficiency

Growth and proficiency-based approaches to education are receiving attention because they seemingly provide an obvious and visible view of attainment over time. The notion of "growth" and/or proficiency implies a measurable indicator of student progress and so can point towards "gaps" in knowledge. Contemporary conceptions of growth and/or proficiency models in learning are used for accountability purposes with the latter holding all students to the same standardized achievement benchmark/s. Achievement measures focused on proficiency set minimum learning targets that all students must reach. The proficiency approach as a measure of growth in determinations of learning relies upon a student demonstrating expected knowledge outcomes regardless of prior attainment.

The proficiency account of learning emphasizes tracking achievement over time. This has the advantage of holding schools and teachers to account for

what is realistically in their control. In other words, the approach sets aside other potential influences on learning for example, previous school attended and/or socio-economic issues. The growth approach of learning attainment is seemingly more personalized than the strict proficiency approach of achievement in that it centres on the student as an "individual". It has the advantage of setting learning targets which takes into consideration the particular circumstances of each individual student. The approach makes use of teacher assessment of student learning at various stages of pupil educational development.

The concept of growth in an era defined by accountability and measurement contains a performance orientation narrowing its scope so that it is understood as part of a broader standardization narrative. Lewis argues that in this conceptualization of education the learner is represented as "the subjective figure . . . who must be made operative, productive, and functional according to certain financialized forms of assessment and risk management" (Lewis 2018, p. 4). Growth can then be aligned against student achievement as a marker of teacher and school success. Recent research attests to how "circumscribed understandings of student growth and achievement" (Fisher-Ari, Kavanagh and Martin 2017, p. 255) reinforce the "fragmenting of knowledge" (Fisher-Ari, Kavanagh and Martin 2017, p. 263). A problematic aspect of this fragmentation "learnification" concerns the broader subjugation of education and by implication students and classroom teachers where the "transformation of an educational vocabulary into a language of learning" (Biesta 2009, p. 36) determines what we think an education is for. Explicit attention is then given to the learner in terms of the functional "use" that an education has for them.

> One must become a learner in order to survive within a flexible and mobile global economy, and financial capital cannot continue to expand its riches without the immaterial/biopolitical labor of the learner.
>
> (Lewis 2018, p. 4)

Definitions of successful pedagogy and learning narrow towards a one off ". . . score or numeric percentage to demonstrate students' seeming success rather than demonstrations of meaningful growth and deep understandings" (Fisher-Ari, Kavanagh and Martin 2017, p. 263). This re-definition of growth is also a re-definition of teaching practice in that the focus is switched to "value-add" meaning the specific classroom activities and practices of teachers that have actually yielded enhanced student performance as determined by standardized testing. A problematic tension exists in maintaining balance between the education policy aspiration of proficiency and/or growth determinations of student achievement and the need for inclusive assessment practice/s in an era of high-stakes verification requirements. Practices of inclusion in terms of allowing more flexibility for students to demonstrate their learning is often limited (see Baak, Miller, Sullivan and Heugh 2020). The high-stakes assessment connected to proficiency and/or growth measures of student achievement rarely account for various forms of diversity, that is, gender, class, culture, language and so on, limiting

the specification of learning to the requirements of "evidence" in the form of performance standards in prescribed curriculum pathways. This aligns with the assessment for educational accountability agenda of recent decades and the trust in "psychometric measurement theory" which is methodologically grounded in positivism and an educational approach that stipulates "what counts as learning, how it can be numerically quantified, distributions of student outcomes, and comparative performance" (Cumming, Van Der Kleij and Adie 2019, p. 838).

The second component of this assessment agenda is the Assessment for Learning (AfL) approach where practice/s adopted by the classroom teacher focus on learning improvement. AfL or formative assessment is an approach that informs the teacher with evidence around the nature of pedagogy to be enacted by way of supporting student learning. Both of these assessment approaches (i.e. proficiency/growth and AfL) reflect a performativity and "data" educational direction co-opting the classroom teacher into re-thinking their conceptualization of assessment and learning so that verification measures form a central feature of their pedagogy. Interestingly, the work of Cumming et al. tends to suggest that both assessment approaches have yet to clearly show direct links between "better teaching practices and student learning" (2019, p. 851). Cumming et al. go on to say that there is a clear need for "further alignment between policy-making, teaching practice and research" (2019, p. 851) in regard to assessment and how it is used to inform teachers about the direction of classroom instruction including in the evaluation of learning over time.

Dewey and the concept of growth

When Dewey refers to growth as part of education, he is making the claim for a process of development that is dependent upon specific conditions. The primary condition is that of immaturity meaning not the negative "absence of powers" gained later as part of a natural process of evolution over time, more so the expression of "a force positively present – the *ability* [emphasis original] to develop" (Dewey 1985, p. 46). In other words, a positive rendering of capacity and potentiality where there is "the *power* [italics original] to grow" (Dewey 1985, p. 47). Dewey in *Democracy and Education* wanted to highlight the tendency to associate immaturity with "mere lack, and growth as something which fills up the gap between the immature and the mature" (Dewey 1985, p. 46) as opposed to what he viewed as the rightful meaning of growth or growing, that is the "possibility of continuing progress" (Dewey 1985, p. 50). This can only occur through what Dewey suggests are "the two chief traits of immaturity, dependence and plasticity" (Dewey 1985, p. 47). Human dependence and plasticity relies upon our social interdependence and flexibility, the former as part of the social interaction found in community throughout the human life cycle, the latter as part of learning from experience.

The flexibility that stems from the plasticity Dewey mentions as one of the indispensable traits of immaturity is especially significant for his conception of growth. The flexibility Dewey is thinking about is not mere change by way of

some external pressure point that forces a change in behaviour. As he says "it is something deeper than this" because it "is not something done to them; it is something they do" (Dewey 1985, p. 49) which points to a type of awakening in the person and the formation of "intelligent habits, which originate from what we have learned from previous experience" (Phillips 2016, p. 40) beyond simply the routine or unthinking.

> It is essentially the ability to learn from experience; the power to retain from one experience something which is of avail in coping with the difficulties of a later situation. This means power to modify actions on the basis of the results of prior experiences, the power to develop dispositions. Without it, the acquisition of habits is impossible.
>
> (Dewey 1985, p. 49)

Dewey is suggesting that there is merit in habits if they induce long-lasting appropriate actions and which enable further growth to occur. Rightful intelligent habits "means formation of intellectual and emotional disposition as well as an increase in ease, economy, and efficiency of action" (Dewey 1985, pp. 52–53). Dewey applies an active thoughtful aspect to habits beyond simple habituation, making connections with both intelligence and interests or desires to demonstrate the holistic approach he was using. Expanding upon this point he differentiated between routine and unthinking habits from thoughtful ones, to the point where he argues that our habits reveal our *being*. Significantly, the concept of growth and of how Dewey talks about it is embedded in the continuum of meanings of the experiences that one encounters.

Dewey (1985, p. 361) envisions no end point to growth and to growing because "the self is not something ready-made, but something in continuous formation through choice and action". An education in its fullest sense both "informal and formal should be a process of developing good habits" (Heilbronn 2018, p. 304) and so as "growth is the characteristic of life, education is all one with growing; it has no end beyond itself" (Dewey 1985, p. 58). Education is then a process, continuous as "it is its own end . . . one of continual reorganizing, reconstructing, transforming" (Dewey 1985, p. 54). Life then is development and growing as part of living is the formulation and application of human capacity for the fulfilment of human potential. Education and the work of teachers through formal schooling is significant here in that the "goals of education as growth are two: learning the method of thinking or problem solving, and inculcating the desire to continue learning" (Campbell 2016, p. 43). Schooling and the education that flows from it must work to this end. Returning to Dewey:

> Since in reality there is nothing to which growth is relative save more growth, there is nothing to which education is subordinate save more education. It is a commonplace to say that education should not cease when one leaves school. The point of this commonplace is that the purpose of school education is to insure the continuance of education by organizing the powers

that insure growth. The inclination to learn from life itself and to make the conditions of life such that all will learn in the process of living is the finest product of schooling.

(1985, p. 56)

This means that the "truly educated person keeps inquiring, growing in knowledge, appreciation, and understanding" (Phillips 2016, p. 43). In Deweyan terms:

Since life means growth, a living creature lives as truly and positively at one stage as at another, with the same intrinsic fullness and the same absolute claims. Hence education means the enterprise of supplying the conditions which insure growth, or adequacy of life, irrespective of age.

(Dewey 1985, p. 56)

In other words, education is in effect the continuity of meaningful experience discerned by the ". . . intellectual and moral development, lived through the formation of habits and dispositions" (Heilbronn 2018, p. 306) that cater to the good and desirable throughout the course of one's life.

The good and desirable in education that Dewey envisions encapsulate the pragmatic maturity that comes with considered reflection. As Saito points out, Dewey "takes an evolutionary position with respect to the good" where he accepts that in life "everything is in flux and medial" so that "value" in a decision made is found in the "process and consequence of an action in a particular situation" (Saito 2005, p. 82). This is important for education especially in regard to aims and purposes. Holding fast to "fixed, pre-given criteria" (Saito 2005, p. 82) as ultimate arbiters of growth diminishes the significance of the latter losing sight of the interactions involved in either its formation or perceived decline. The form of classroom interaction matters so the privileging of purposes and learning experiences which can enable growth requires education because it in effect expresses the "acquisition of the capacity for an equal and free exercise of social intelligence" (Saito 2005, p. 83).

Importantly, it is the nurturing of the human being (student) through the educational experiences they are engaged in and their reception of it "so that it funds their lives with a vibrant sense of meaning and value" (Alexander 1998, p. 17) which fulfils the functional element of growth as part of an education. This is about a respect for and an explicit commitment to education as the medium by which it can broaden possibilities in the sense of fostering individuality whilst emphasizing development and maintenance of the common life. Proficiency on the other hand could be interpreted as "growth" if seeking a one-off metric determination of an expected achievement level although it does little to illustrate meaningful and deep understanding of especially complex subject matter. There is then a balance to be struck between the nature of the educational interaction as meaningful versus banal transaction. The major and all-important reason for this is simple, that the "true" purpose of an education in terms of growth is about the formation of the human being as capable adult with sound judgement (see

Alexander 1998). Indeed Dewey (1985, p. 367) contends that the potential for a society to be genuinely democratic "depends upon personal disposition" and offers the following in his delineation of interaction and transaction.

> The statement that individuals live in a world means, in the concrete, that they live in a series of situations. And when it is said that they live *in* [emphasis original] these situations, the meaning of the word "in" is different from its meaning when it is said that pennies are "in" a pocket or paint is "in" a can. It means, once more, that interaction is going on between an individual and objects and other persons. The conception of *situation* [emphasis original] and of *interaction* [emphasis original] are inseparable from each other. An experience is always what it is because of a transaction taking place between an individual and what, at that time, constitutes his [sic] environment, whether the latter consists of persons with whom he [sic] is talking about some topic or event, the subject about being also a part of the situation; or the toys with which he [sic] is playing; the book he [sic] is reading . . . or the materials of an experiment he [sic] is performing.
>
> (Dewey 2008, p. 25)

Consequently, he promoted this holistic need to include all the relations we find ourselves *in* the world, by explaining that the "wider or larger self which means inclusion instead of denial of relationships is identical with a self which enlarges in order to assume previously unforeseen ties" (Dewey 1985, p. 362). The significance and quality of the interaction is important here as it "depends on the depth or degree of exchange, growth, and meaning making that takes place" (Boyles 2012, p. 155). The transaction conversely "in a different way, requires making meaning of the world relationally and contextually" (Boyles 2012, p. 155) so is reminiscent of a specific form of thought and action akin to Dewey's "transactional theory of knowledge" which "concerns the *relation* [emphasis original] between our actions and their consequences" (Biesta 2007, p. 13). This is where proficiency provides only a small part of the student achievement as "growth" story.

An economizing appropriation of student achievement as growth

The high-stakes test-driven agenda of accountability views growth through education as being segmented and quantifiable. This enables it to highlight what it perceives as "achievement gaps" in student learning and then translates this as being due to ineffective teaching which can only be fixed by focusing attention on prescribed standards. The deficit view of learners re-directs educational expectations re-shaping conceptualizations of pedagogy narrowing successful learning to high test scores. This form of pedagogic representation is about the evaluative re-positioning of teachers and students both of which are "judged by their ability

to perform" as framed by a "privileging [of] scientific over narrative knowledge" (Fisher-Ari, Kavanagh and Martin 2017, p. 257).

In linking education with quantifiable economized understandings of growth is the attempt to change the essence of an education and the role and work of classroom teachers. Growth is understood in maximum teleological terms involving a "maximisation of learning" based on the appropriate core knowledge and skills of a twenty-first-century economy. The change in relation between pupil and teacher as a result is manifest in the potentialities of "human capital" where education as stored knowledge is put to work in the form of a resource to be exploited later in a highly competitive labour market. Education and the work of classroom teachers then serves an employment/economic function with the intention of first fashioning and reproducing a constant supply of "skilled" labour that secondly sustains an econo-political order, that is, non-dissenting status quo.

Dewey was very much against the limitations and distortions imposed on education by an economic political order of corporatism where educative growth is reduced to being conditional on forms of economic determinism. Writing in the late 1920s and 1930s about America's "individualism" that Dewey associated with its rugged "money culture", he criticized the way American political, social and cultural institutions with their long and established histories were increasingly working and serving the interests of capital.

> Industry and business conducted for money profit are nothing new; they are not the product of our own age and culture; they come to us from a long past. But the invention of the machine has given them a power and scope they never had in the past from which they derive. Our law and politics and the incidents of human association depend upon a novel combination of the machine and money, and the result is the pecuniary culture characteristic of our civilization. The spiritual factor of our tradition, equal opportunity and free association and intercommunication, is obscured and crowded out. Instead of the development of individualities which it prophetically set forth, there is the perversion of the whole ideal of individualism to conform to the practices of a pecuniary culture. It has become the source and justification of inequalities and oppressions. Hence our compromises, and the conflicts in which aims and standards are confused beyond recognition.
>
> (Dewey 1988, p. 49)

Nothing has really changed to this point in time, indeed there is if anything a stronger prioritization of the technical and an appropriation of fields such as education in the securitization of economic progress (see Verger, Parcerisa and Fontdevila 2019). What's more, the individualism of the "self-interested" economic individual operating comfortably in the "free" global market is a defining feature of the contemporary education policy era (see Olssen and Peters 2005). The "low level recall and rote memorization" (Fisher-Ari, Kavanagh and Martin 2017, p. 274) of standardization predominates over the Deweyan conception of education and growth the latter encompassing the "constant reorganizing or

reconstructing of experience . . . which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience" (Dewey 2018, p. 83).

The cut down (economizing) understanding of growth aligns with the "changing world" view that dominates education policy narratives of recent decades. This is a view which uses words of action – design, prioritize, support, enrich, review, grow, engage, reform and update – the intention that of raising student skills and capacities for "success" in preparation for a precarious and uncertain future. It is a view which understands student achievement in either success or failure in terms based on the calculable and quantifiable. Formative assessment features prominently where classroom teachers ascertain student capacity and current level of knowledge for subsequent individualized learning. In Australia, for example, the recent national policy report *Through Growth to Achievement: Report of the Review to Achieve Educational Excellence* (2018) connects assessment with a diagnostic focus hinting that classroom teachers "diagnose" individual student learning needs and levels of literacy and numeracy. Individualized learning plans are the foundation to promote student progress the former based on "best practice/s" and "what work/s". Undergirding learning growth models of this sort is the belief that system-wide indicators of progress guide educational "excellence" and "success". Connected to this view of learning is the dependence on "diagnosis" and remediation of supposed under-performance. Such a view implies that teaching is simply an intervention that somehow causes learning, that is, the medical "clinical" model of education (see Biesta and van Braak 2020). Hence we can now appreciate how the epistemology of education has clothed itself in a highly quantitative format that presumes the high-status impression of being both "science" and "clinical medicine".

Diagnosis in the medical model of education focuses acutely on the classroom teacher practitioner as it is they which bring the professional expertise to bear on the most effective ways to maximize the intended learning of their students. The "dynamics of education" (Biesta and van Braak 2020, p. 449) meaning the associated intricacies of "content, purpose, and relationships" (Biesta and van Braak 2020, p. 450) are funnelled towards a simplistic "linear" understanding of the educational process. Biesta and van Baark suggest two major problems in this kind of an approach to education. The first relates to the wishy-washy treatment of learning as something that an "education is supposed to bring about" (Biesta and van Baark 2020, p. 450) by dint of implementation. The second "concerns the rather simplistic assumption that there is some kind of causal connection between teaching and learning and that the main task of research is to make this connection more secure and more effective" (Biesta and van Baark 2020, p. 450). This deployment of "prescription", "intervention" and "evaluation" (Johnson et al., 2016) is somewhat problematic in that it relies upon a perfectly enclosed rigid system "in equilibrium", meaning an optimum result is to be expected regardless of the arrangement and behaviour of a system's entities and respective inter-relationships or indeed the external influences that may affect the system.

An important aspect involved in the economizing appropriation of student achievement as growth is the "positivist focus on rational inquiry that involves the separation of knower and knowledge and the creation of truths external to human relationships" (McKnight and Morgan 2020, p. 649). This represents more than a view of how the world works. It is in effect about legitimating forms of knowledge including the discursive descriptions (discourse) used to justify action/s "and the overall ways in which meanings are being managed" (Maguire 2014, p. 782). The classroom teacher as trusted authoritative "knowing expert" (Maguire 2014, p. 782) is displaced by an unquestionable "evidence base" having distilled only what it deems as relevant in directly "causing" designated learning outcomes. This then is a form of complexity reduction, which omits broader recognition of the sub-systems which form the substantive content of the educational system as a whole. The content of class, culture, gender and other socio-economic formalities which are marked by the numerical reductions of magnitude, measurement and number underrates complication. Complexity and complication are by extension substituted by the unilinear and universal ignoring the complex differentiated taxonomies involved in the particular structures which define the educational system.

Here is where debate about student achievement and growth must move beyond the present, that is, from the economizing dislocated exchange focused purely on the non-relational. Recognizing that classroom teachers and their teaching practice/s are indeed fundamental to student achievement and growth is to note the contextual field specific relevance of the education system. The "capitals" inherent in the field of education are determinative of field position that when interacting with habitus produce the different outcomes of the education system's weighted "structural and operating characteristics" (Bourdieu and Passeron 1990, p. 195). This means that classroom teachers and their students are positioned within a field that is bounded by the prevailing set of power relations in which it is constituted. Accounting for the sub-systems and set of relations which connects the education system to a characteristic field of power – the economy – is to action an in-depth analytical response to the study of student achievement and growth. Such an approach questions the reductionist exchange of the current era which often loses sight of the "bigger picture".

The current educational model which views student achievement and growth as the end-product of learning instrumentalizes the curriculum, the skills and capabilities derived from it and the "equipment" needed for future success. Classroom teachers in this model do the "equipping" their attention drawn towards how much a student learns. It is a model of student achievement and growth which manipulates the personal form of the human classroom encounter between teacher and student pushing educational aims towards wider economic oriented functions. If we take Michael Fielding's characterization of "the school as a high performance learning organisation", then the current locus of its potential is "dominated by outcomes, by measured attainment" (Fielding 2007, p. 339). Any "power" to develop "of both students and teachers is derivative and rests primarily in their contribution, usually via high-stakes testing, to the public

performance of the organisation" (Fielding 2007, p. 339). This in effect is the reconstruction of education where the work of classroom teachers is about fulfilling "performativity and the external requirements of persistent targets and incessant audit" (Fielding 2007, p. 401) with student achievement and growth simply the proportion of school completers equipped with "flexible work-ready skills".

Authentic pedagogy and growth

Alongside reform efforts to boost student achievement is the concurrent emphasis in meaningful educational engagement (see Tomaszewski, Xiang and Western 2020). Disciplined inquiry centred around "rich tasks" (see Lingard, Ladwig and Mills 2001; Newmann, Marks and Gamoran 1996) prioritizing higher-order knowledge and complex thinking described in the research literature as "authentic" or "productive" pedagogy, reflect in one way the significant economic, social and technological changes of the present era. Technological and employment shifts underpinned by growth in automation and large-scale global placements of production alter the balance and type of knowledge needed by students as they progress through school. Education systems around the world in responding to new modes of production, key of which involves the press for higher levels of worker and firm flexibility, productivity and innovation rework curricula so that student learning and pedagogical models better respond to the change in global and national economic needs and aims. Buttressed by specific teaching practice criteria designed to promote the intellectual quality of all pedagogy and instruction is student engagement in challenging intellectual work that stimulates thinking whilst fulfilling broader "democratic" aims of participation, reflection and connection. Stemming from the work of Newmann, Marks and Gamoran (1996), where the quest for enhanced student achievement characterized by strong intellectual accomplishment facilitated by "active learning" is the promotion of authentic achievement. Newmann, Marks and Gamoran (1996) define authentic academic achievement "through three criteria: construction of knowledge, disciplined inquiry, and value beyond school" (p. 282).

The work of Newmann, Marks and Gamoran (1996), stimulated by the successive reform efforts in the USA which increased active learning "without enhancing the intellectual quality of students' work" (p. 280) coincided with wide-spread interest in the type and form of pedagogy (knowledge – curriculum, teaching – transmission, verification – assessment) on offer in schools. This interest splits into two distinctive categories one of which with roots in school effectiveness school improvement (SESI) which includes the broader school autonomy movement of the 1990s and beyond, the other located within a sociology of education foundation emphasizing equity and social justice in schooling (see Skourdoumbis 2014). The SESI and school autonomy interest in student achievement and teaching practice/s preferences positivist conceptualizations of educational effectiveness focusing on the so-called "input factors" and "processes" germane to student achievement. This narrows towards "teaching processes characterised by adequate lesson preparation, time spent on instruction, quality assessment,

interactive teaching methods, and teacher expectations of pupil performance" (Mugendawala and Muijs 2020, p. 446). It also encapsulates school and organizational management processes. Educational growth in this view steers interest about student achievement towards individualized teacher and school responsibility highlighting its belief in the "in situ" school, classroom and organizational process-oriented approach to learning versus broader discussion about socioeconomic status considerations.

An important element coursing through all aspects of recent efforts to enhance educational effectiveness including giving sufficient weight to equity and social justice concerns through authentic pedagogy is the suggestion that "particular classroom practices are linked to high-quality student performance" (Hayes, Mills, Christie and Lingard 2006, p. 1). Effective classroom teachers intellectually challenge their students and "use the core concepts of their discipline to guide them in the ways that they structure assignments, classroom questions and feedback" (Saye et al. 2018, p. 866). In adhering to the core principles of authentic pedagogy, effective teachers

> Pose challenging questions and press students to justify their answers with evidence. They support cognitive autonomy, asking students to generate original solutions to problems and to use knowledge in meaningful ways that can be applied beyond the immediate classroom setting.
>
> (Saye et al. 2018, p. 866)

This reflects the deep learning envisioned by Newmann, Marks and Gamoran (1996) framed by the higher order thinking involved in rich conversation about the task subject matter that connects classrooms with the world outside, something that Dewey believed an education should set out to do and something to which many teachers have also desired to emulate. Here then is where the transformational power involved in authentic modes of pedagogy potentially challenge and extends students.

On offer in most education systems across the globe is an economy of learning predicated on what Lewis characterizes as a simple equation, that is, "I (ntention) + S (tandard) + A (ctualization) = M (easurable outcome)" (2018, p. 2). This view of learning according to Lewis "has certain connections to financial logistics that, at their base, concern the management of resources for maximal returns on investments" (Lewis 2018, p. 3). It is a view which has no place for the indeterminate, caring only for "inputs" and "outputs".

> Learning, in its current configuration, is a kind of governing of abilities through finance. As is the case with financial logistics, so too is the learning economy effectively an administration of resources and funds, the minimization of risk through calculation, and an investment into human capital development, all with the goal of future productivity in mind. The threat to the system is when in-abilities prefer not to perform up to expectations, thus reducing returns on speculative investments. In this sense, there is a

dovetailing of certain financial and educational logics that mutually reinforce one another.

(Lewis 2018, pp. 3–4)

This in effect is an "aesthetics of education" defined by commoditization, its usefulness and "significant form" (Reid 2008, p. 296) only as good as the capacity it has for transferring basic "principles of individual responsibility, autonomy, competition, and calculation" (De Lissovoy 2018, p. 188). Pedagogy, the nature of classroom experience and the learning that stems from it in this iteration of the aesthetic in education serve efficiency and accountability aims as education is tied to economic prospects.

In talking about aesthetics and education, L. Arnaud Reid (2008) references meaning and the meaningful which we sense in the form of enjoyment if we're immersed in valuable experiences.

> We have an aesthetic situation wherever we apprehend and in some sense enjoy meaning immediately embodied in something; in some way unified and integrated: feeling, hearing, touching, imagining. When we apprehend – perceive, and imagine – things and enjoy them for their own sakes – for their form – the forms seem to be meaningful to us, and this is an aesthetic situation. What we thus apprehend as meaningful is meaningful not in the sense that the perceived forms point to something else, their meaning, as ordinary words or other symbols do: the forms are in themselves delightful and significant – a poem, a picture, a dance, a shell on the seashore. This then is the aesthetic, which art forms share with objects and movements which are not in themselves art at all.

(Reid 2008, pp. 295–296)

The aesthetic consideration that Reid has in mind here is both symbolic and "affectively meaningful" (Reid 2008, p. 299) for both the teachers and the students. The school curriculum for instance contains the various subject disciplines – Mathematics, History, Chemistry and so on – which contain the symbolic and conceptual. Meaning is then conveyed and crafted often indirectly to students mediated by the interactions engaged in "in terms of concepts which are symbolized in language or other forms" (Reid 2008, p. 299). This is about making sense of the lived world of relevance with the world in the abstract. There is conversely also "the aesthetic symbol" (Reid 2008, p. 299) which Reid suggests is about the meaning conveyed beyond or outside of a word symbolizing an idea. Reid points out that "the aesthetic object is meaningful not in that it points to something else, but in that its meaning is somehow contained in it" (2008, p. 299) as interpreted and understood by the educator. This is about an aesthetics which moves you where "the world-as-felt in every kind of way, things known and loved, hated, marvelled at, felt with a sense of comedy, tragedy, disturbance, peace" (Reid 2008, p. 300) contribute to meaningful dynamic educational experience.

This aesthetic aspect of teachers' work involves the embodiment of an epistemology of education. To offer significantly meaningful experiences for students requires teachers to have an authentic sense of themselves as educative artists through the pedagogical approaches they judiciously choose to enact. This is clearly an existential aspect of being a teacher, and with a special reference to the teaching profession, Biesta (2017, p. 9) identifies that "existential matters are ultimately first-person matters rather than matters of theory" or, we would add, matters of impersonal "best practices" which must merely be *applied* as if teaching were simply a technology. The embodiment of an epistemology of education is something that Biesta (2017, p. 19) recognizes is transformative for teachers, resulting in an ontological move from "being *subjected* to one's desires . . . [to] being *a subject* of one's desires'. This existential and educative growth of teachers requires an acceptance and commitment to one's autonomy and authenticity, placing one as a responsible participant in the face of bureaucratically sanctioned pedagogies and curricula.

This then is not the growth and achievement that allegedly comes from instituting "proper" assessment and reporting requirements or aligning expected learning progression/s against standards. It is conversely about teachers internalizing, feeling and acknowledging that students should be stimulated and challenged by the curriculum which acts as a backdrop to an aesthetics of education that is not confined by narrow conceptualizations and imposed categories of "attainment" and "gain".

Conclusion

In this chapter, we have explored the concept of growth and the contentious nature of its meaning depending on which discourse is dominant. Contemporary education policy has a limited and reductive conception of growth, one that is tied to student achievement standards as incremental and linear gains in learning. This tends to conceptualize growth in numeric terms, thereby making it "visible" only through standardized benchmarks. Classroom teaching practice is then only effective and "good" if it enables this form of growth to occur. In the latter part of the chapter, we have given some consideration to the notion of an authentic pedagogy which we argue provides a far stronger foundation for the conceptualization of growth. We argue this foundation has the advantage of providing a platform for the meaningful enactment of educative experiences which are socially embedded within classroom communities. Thus they can lead to both individual and social flourishing as envisaged by Dewey, who reminds us that growth, in terms of being human, is a holistic affair, involving individual initiative as well as moral and political "goods" for the community as a whole.

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8 Innovative practice within the evidence-based matrix

Introduction

The need for innovative behaviour on the part of classroom teachers has probably never been higher especially from an education policy related sense. Therefore, in this chapter, we revisit how teaching is often referred to as being both a science and an art, by examining this requirement for innovative pedagogic practice. The chapter grapples with an important assumption of teacher autonomy to argue that actual opportunities for classroom teachers to engage in innovation in schools, requiring novelty and creativity while remaining "scientifically informed", is untenable. There are two key variables which are connected to teacher innovative behaviour, namely professional development and appropriate appraisal and evaluation systems of effectiveness and quality, and these two are often in competitive tension with each other. We will advance the case that innovative behaviour on the part of classroom teachers deemed successful in enhancing student growth and learning requires the acceptance and support of the broader school community which is made possible via a dominating epistemology of education itself. This domination not only determines how good teaching is to be understood and enacted but also provides the governing mechanisms to ensure that participants committedly adhere to such a discourse. The innovative behaviour expressed by classroom teachers is therefore accepted within the discourse that teaching itself is fundamentally a "scientifically informed" practice charged with *causing* the learning of students thereby achieving the unquestioned benchmarks of outcomes which define success.

"Science" informing teaching practice

"Elite" practitioners in the fields of the physical and natural sciences affirm their freedom and autonomy via their capacity to innovate challenges to various hypotheses. Scientific authority is legitimated by the set of practices which coalesce around experimental trial and error giving demonstrative effect to the "truths" of investigation. Such experimentation depends on strict controls of variables and consequently these elites structure closed-systems to conduct their work. When transferred into the field of the social sciences and education in

particular, analyses, such as those founded on an "evidence base" and reporting on concepts of educational effectiveness and/or quality, require an excision of social, political, cultural and economic externals in order to study "only" those variables considered relevant. Ordinary experience, especially from the perspective of the field-based classroom teacher practitioner, is confronted by the defining impositions of science, such as a vast financial fund/grant base, powerful technical accompaniments, the extensive procedures of large so-called "random" trials, the formalizations of statistical data and the methodologies of "officialised" experimental reason which determine the important variables from the unimportant ones. Embedded within this "scientific" approach are the political and economic objectives of the time that in the present, and for the field of education and classroom teachers, is mired in a dominant reform agenda which focuses on solving so-called "vexed" problems that it re-shapes into specific challenges; enduring inequity, the lack of innovation, persistent ineffectiveness and lack of quality. This represents the "independent" search for educational truths by "experts" who reduce educational concerns into "scientific facts".

An important consideration in this space is the technical super-structure that provides the scientific "capital" representative of a strategic and "officialised" force, that is, the preservation of power on the one hand and/or transformation on the other. The technical mainstay of this super-structure especially when it argues for system change is the certainty provided by mathematical knowledge. Certainty grounded in absolutes of thought with confidence in the exactness of mathematical rules removes complexity and nuance, resulting in carefully constructed and controlled variant which limit "our forms of access to the world (by measurement)" (Longo 2019, p. 66).When applied to education, it suffuses understandings about "contexts" into scientific abstraction/s. This is most evident when pontificating on the effects of schools and/or teachers on how well they enhance student achievement. The research effort in this way hones in on the classroom student–teacher exchange as universal educational transaction defined by the state of the art in multi-level, growth curve and structured equation modelling. All of this is employed to evaluate school and teacher effects and the value-added whilst immersing socio-cultural and economic characteristics in a culture of abstraction from which it draws conclusions about variations and "gains" in student learning, extrapolating them to the practices and processes of teaching and more specifically how teachers understand themselves and their role within an overall particular epistemology of education.

Typically at stake here is the struggle for field dominance. The scientific field as Bourdieu makes clear "is a separate world, apart, where a most specific social logic is at work, affirming itself more and more to the degree that symbolic relations of power impose themselves" (1991, p. 6). This is a field that deals in "specificities" short circuiting explanations about economic and other social structures (education for example) so that the presuppositions it depends on seem reliable and beyond reproach. Education and indeed classroom teaching conversely deals constantly with the uncertainties and modifications of practice. Classroom teachers rely "on a combination of knowledge, experience and improvisation" (Amit

and Knowles 2017, p. 166). This means they manoeuvre as needed employing "their own capacity to evaluate which of several [or more] possible tacks they might employ in shifting conditions" (Amit and Knowles 2017, p. 166) whilst teaching in classrooms. The purely scientific analyst takes no notice of this arguing about the soundness of their methodological re-interpretations of education as controllable causal outcomes founded on fundamental laws and principles.

We see this form of "knowledge mobilisation" (Lingard 2013, p. 114) in education policy production today. Lingard (2011) for instance speaks of the "dominance of policy as numbers in contemporary education policy" (p. 256) where the so-called need for efficiency, effectiveness and accountability uses the "statistical analysis" as the "reductive norm for contemporary education policy at all levels of rescaled political authority" (Lingard 2011, p. 357). This objectivation which in the field of education manifests in the individuation and singularity of the high-stakes test and productivity audit removes the need for an understanding of particularity especially of teaching practice and how it affects student learning. A technical knowledge production system settles the messiness of field controversy via rank ordering, measuring and the calculation of so-called "impact".

This in effect is an expression of the "new governance" (Thompson, Adie and Klenowski 2018) arrangement in the field of education which concerns itself more with data production and its evaluation. It consists of "scientific validation" determined by the "regime of veridiction" (Foucault 2008, p. 36) composed of the assembled techniques and mechanisms which act as jurisdictional authority over the fields of practice such as education. Evaluation and validity used as field-specific rectification and reconstruction tools formulate system aims and intentions especially around classroom teaching practice/s, student assessment and the work of classroom teachers. It distorts the conceptualization and theorization of education neglecting inspections of broader implications (social, historical, political and economic).

Here is where the "cross-field effects" (Lingard and Rawolle 2004) of scientific exceptionalism determines "from the data" the variable of interest for re-fashioning which in most cases in education is narrowed down to the isolation of the best form/s of teaching practice. When Lingard and Rawolle (2004) talk of cross-field effects they mean the series of relationships and logic/s of practice reflected in a field of power and the influence exerted within and over another field.

> The fact that there are effects between fields would appear to suggest something about the nature of autonomous fields in their inter-dependence. This is to suggest that the autonomy that Bourdieu and others ascribe to fields is one related to their distinctive products, be they credentials or innovations, scandals, or laws. However, these distinctive products often rely on a range of taken for granted conditions in order to be produced, broad conditions that only appear relevant in exceptional circumstances, or to different disciplines. Specific events can be used to illustrate some of the regularities of effects that occur between specific fields.
>
> (Lingard and Rawolle 2004, p. 368)

In the field of education, the specific events of recent decades of major impact are those connected to large-scale economic change (see chapter 3) and the associated flow-on effect/s for curriculum, pedagogy and assessment. The recurring policy-maker concern "about the performance, equity and efficiency of education systems" translates into the prescribed quick-fix regularities of "decentralisation, standards and accountability" (Camphuijsen, Møller and Skedsmo 2021, p. 624). So, whilst this form of structural effect given impetus via the quantitative methodologies of "a policy as numbers approach" (Lingard 2011, p. 357) means "schools are given greater authority for organizational and pedagogical decisions, . . . [they are also] simultaneously held accountable for achievement of centrally defined objectives measured by standardised tests" (Camphuijsen, Møller and Skedsmo 2021, p. 624).

This is where the push for evidence-based practice (EBP) exerts an effect on how a field engages with the complex concepts, problems and definitions with which it is comprised. The movement towards EBP in education as in other social science fields emerged in the 1990s. Core amongst its aims was "to promote the most effective and equitable policies and programs" from a base of "strong scientific research" (Stockard and Wood 2017, p. 471). A notable and very influential body from within the USA which reportedly evaluates and summarizes "best practice/s" from the available evidence base is the What Works Clearinghouse (WWC) – Institute of Education Sciences. As stated in its handbook, the WWC "considers information provided about a study's context, sample, design, analysis, and findings" and is evaluated "using the WWC group design standards" (WWC 2018, p. 1) incorporating – Randomized control trials and quasi experimental designs, Regression discontinuity designs, Single case study designs and Non design components. There is a five-step review process that the WWC uses centred on – Developing the review protocol, Identifying relevant literature, Screening studies, Reviewing studies, and Reporting on findings. The "mission of the WWC is to be a central and trusted source of scientific evidence for what works in education. The WWC examines research about interventions that focus on improving educationally relevant outcomes, including those for students and educators" (WWC 2020, p. 1). The standards when evaluating education research used by the WWC "focus on the causal validity within the study sample – that is, *internal* validity – rather than the extent to which the findings might be replicated in other settings – that is, *external* validity [italics original]" (WWC 2020, p. 1).

The obvious dominance of quantitative evaluation in how the WWC assesses "quality" and "effectiveness" aligns with a methodological underpinning which utilizes a cost-benefit framework. The productive worth of education is then about a return on investment (usually financial) and so only quantifiable "causal" evidence matters. This is because determinations must be made about impact, usually of policy interventions. The cross-field mechanism at work here is of an economizing quantitative rigour that when applied to the study of education seemingly proffers "strong" scientific analysis. This political and commercial interest in determining the "science" and the "evidence" has obvious implications that

must be addressed. In the medical field for example, Peile (2004) points to how the financial interests of the pharmaceutical industry corrupt the actual "science" in order to tailor the data to suit the commercial interests to the points where it is becoming more widely recognized that proper evidence-based medicine is an "illusion" (Jureidini and McHenry 2022).

There is in addition to the above the transformation of systems brought about through specificity. At work here is field transformation via generalization achieved by a "scientific" discourse which places conditions on validations and comparisons. Education, when viewed in this way, is concerned with the conditions of utility and the exchange value that it can engender. The application of a pure scientific rationalization and "calculus of utility" (Foucault 2008, p. 251) in all educational matters is about introducing a new kind of subjectivated object, one constrained and identified by the scientific theoretical presupposition. This is to avoid methodological accountability to any other field jurisdiction other than the scientific. The nature and constitution of education and specifically the classroom teacher suffices in itself in this "experimental set-up" because the rules and criteria of "truth" are defined by the paradigmatic forms of a self-evident "scientific" reasoning which banks on the configuration of education along economic lines.

An evidence base – "what works"

The evidence base of "what works" in the field of education is couched in the demystification provided by an absolutist universalism which mediates understanding of the social. It consists of mapping processes in the form of discrete statistics, usually analytic samples which express causation or at the very least correlation that subsequently defines education as a vector space, in other words it comprises a definite and measurable "bottom line". Each component of the mapping process is an argument for the mathematical and scientific rigour of notation, definition and construction. This scientific practice is about staking an authoritative interest in education as a scientific activity. The specific discourse of the scientific field aligns with and benefits the dominant research-policy relationships of the contemporary era which politically is about "the state's preference for quantitative research over qualitative work, in a context of reduced legitimacy of politicians and limited political visions" (Lingard 2013, p. 118). An important part of this scientific knowledge production is communication, and the implicit message conveyed by statements about policy and decision-makers requiring "access to the best evidence about the effectiveness of education practices, products, programs, and policies" (WWC 2020, p. 1). This is a message about trust and the confidence in research, and education research specifically in furthering "economic stability and growth" (Beach and Bagley 2012, p. 287). Credit is bestowed on accepting two things. First that the scientific knowledge generation process is reliable in that it only can determine "facts and principles" which "are acquired through the long process of systematic theoretical and empirical inquiry and stringent disciplinary

investigation and analysis" (Beach and Bagley 2012, p. 287). This is even more important "and essential for economic growth and social, technological and cultural development" (Beach and Bagley 2012, p. 287). Second, that "the relationship between formal education (schooling) and economic production" (Beach and Bagley 2012, p. 288) is a given.

An important aim of the EBP movement is transmission of research findings. This is an important consideration in that the EBP movement is interested in large-scale public portrayals of the how and what of research. Whilst reasonable as an aim, it generally leads to the presentation of research via so called "systematic reviews".

> The concept of systematic review shares some common elements with the notion of evidence-based practice more generally. It portrays the task of reviewing the literature as reducible to explicit procedures that can be replicated; in the same way that advocates of evidence-based practice see professional work as properly governed by explicit rules based upon research evidence.
>
> (Hammersely 2013, p. 6)

There is a tendency in an approach of this kind to leave out literature, which could result in development of important policy as a result of inadequate and/or partial consideration of all available research. In addition, there is the added potential of depriving the public "of a full and representative understanding of the research findings" (Stockard and Wood 2017, p. 472).

> The result of this mistaken approach to validity assessment is that systematic reviews are likely to exclude or downplay some kinds of study that may be illuminating, especially qualitative work, while giving weight to other studies whose findings are open to serious question.
>
> (Hammersely 2013, p. 6)

With respect to the WWC mentioned in the previous section and their approach to "reviews", Stockard and Wood say this that the "various WWC criteria and standards . . . when taken together . . . seem to have resulted in a system that drastically limits information provided to the public and the accuracy of conclusions presented" (Stockard and Wood 2017, p. 489). In effect, the public when presented with "systematic reviews" is given a form of diluted summary. Hammersley on this point:

> The provision of any summary involves the paring away of many qualifications and of much methodological information. While summaries may be a very useful aid for those who have already read the whole review, or the original studies, they can sometimes be obscure or misleading for those who have not.
>
> (Hammersely 2013, p. 7)

The only way around the problems that systematic reviews throw up is to (1) broaden the sample of research designs reporting on important aspects or interventions in education and (2) provide in-depth detailed summaries which mention variations in study designs as well as including other characteristics (contextual and otherwise) which have been found to have impact (see Stockard and Wood 2017). This potentially provides some way forward through the purely techno-rational objective "best-practice-what-works-life-in-the-fast-lane-thinking" (Daza 2013, p. 605) which dominates "scientific research" on and in the field of education.

Creativity and innovation

The creativity and innovation expected of classroom teachers today connects with the "on-going transformation of teacher professionalism" (Avis 2003, p. 315). It is about entrenching an educational model focused on the production culture of knowledge work within the classroom which bolts into place "the re-formation of teacher professionalism" as a response "to the uncertainties, risks, and opportunities that currently exist" (Avis 2003, p. 316) in society more generally, especially economic risk and uncertainty. Whilst the notion of creativity and innovation in education is cast in terms which align with the discursive policy themes of the current era, "readiness for employment and rapid change" (Gormley 2020, p. 314), it also touches on the "doing" of classroom practice differently, that is, creative and "good" teaching and a focus on problem-solving (see OECD 2014).

> It seems that problem solving is a distinct skill with similar attributes as proficiency in specific school subjects. While influenced by differences in individuals' cognitive abilities, its development depends on the opportunities offered by good teaching. Ensuring opportunities to develop problem-solving skills for all students and in all subjects, including those not assessed in PISA, in turn, depends on school- and system-level policies.
>
> (OECD 2014, p. 125)

An important part of this shift in emphasis around teaching practice is to do with the discursive rhetoric of the knowledge-based economy and the subsequent utilization of knowledge.

> At first, the focus of this discourse was on competencies and learning, but as soon as the idea emerged that the knowledge-based economy requires not only the abilities to acquire and deal with knowledge, but also the abilities to produce and use new knowledge, the focus of the discourse shifted to creativity and innovation.
>
> (Hammershøj 2017, p. 1313)

In other words, the shift in emphasis in classroom teaching practice towards an active application of creative capacity. This fits with Hammershøj's assertion that

whilst overall there "has been an increase in research activity on creativity and innovation', there is specific interest "on creativity in education in particular" (Hammershøj 2017, p. 1313).

Gormley (2020) provides an account of the concept of creativity and the field of education in his work surrounding the discursive construction of the term and its association to and with neo-liberalism. He suggests that the term has over time taken on a series of different and openly oppositional meanings. This is because the notion of creativity in particular has been used by different fields in different ways highlighting the various tensions and contradictions associated with the concept. Using Gormley's elaboration to illustrate: creativity which can be taught and recognized as a problem solving process versus the idea that creativity emanates from some unknown spontaneous source; creativity as a social construct as opposed to some individual trait which embraces a sense of risk taking; the fostering and development of creativity in schools which conversely as a result of how schools have operated historically may work to blunt or extinguish it, and finally the creativity which is now necessary as part of one's continued success in a flexible and uncertain labour market versus the creativity that is inherently vibrant and haphazard (see Gormley 2020, p. 316).

Hammershøj (2017) suggests that there are inherent similarities and differences between the concepts of creativity and innovation despite their conflation in recent decades by economic and education policy as a way of enhancing the competitiveness of nation states.

> On the one hand, creativity and innovation appear to be processes that are similar in nature in that they both seek to create something novel, as indicated by common definitions according to which creativity is about developing new combinations and innovation is about carrying out new combinations. On the other hand, the concepts of creativity and innovation are of a dissimilar type in that creativity is originally a theological and humanistic concept, whereas innovation is an economic concept.
>
> (Hammershøj 2017, p. 1314)

Interestingly Hammershøj (2017) makes the point that creativity is often the focus of research which seeks to harness "the abilities and the learning and teaching environment characteristic of creative people or groups" (p. 1314), a clear educational and/or training appropriation of the concept and what it seemingly signifies as something that is teachable or can be learnt. Conversely, innovation research according to Hammershøj (2017) is on the whole interested in "identifying the methods and the work climate characteristic of entrepreneurs or innovative companies" (p. 1314) an obvious business/finance conceptualization. Nonetheless whilst differences between the two terms have been made clear by Hammershøj, the post-organized capitalism of the contemporary era it could be argued has ushered in their convergence in complementary ways, that is, as the indispensable frameworks of an embodied action. At one level and in the field of education this embodied action prioritizes creativity as something that can

be taught and learnt complemented by an entrepreneurial innovative spirit or risk-taking which can be used to solve educational and wider social problems and challenges. The classroom teacher is central to this endeavour.

Professional development and learning

The notion of the classroom teacher professional as someone with the capacity and skills which are fit for purpose of working with and against the educational challenges of our time sustains important aspects of professional development (PD) and professional learning (PL). Mockler (2013) provides an account of the difference between PD and PL despite their conflation over time suggesting that PL "constitutes the processes that teachers engage in when they expand, refine and change their practice" (p. 36). PD conversely is traditionally associated with the "one off" fixed learning experience in the form of a type of training or instruction readying the teacher for the enactment of change, which as Mockler points out "*may lead* [italics original] to professional learning, but on their own do not equate with it" (2013, p. 36). Importantly and emerging over time and linked to national teacher standards is the connotation of "continuous" PD and/ or learning. In other words, the commitment to career "life-long learning" that is unceasing "justified in relation to the rapid and changing demands of a global knowledge economy, and located within a rhetoric of appraisal and adherence to professional standards" (Watson and Michael 2016, p. 259). This is about the ongoing and continuous learning or development of a classroom teacher involving them as professional practitioners "in an unending process or quest for betterment" (Watson and Michael 2016, p. 267).

Many of the dominant policy discourses of recent years, teacher quality, teacher standards and accountability and teacher professionalism have shaped the field of teacher PD and PL by also shifting the attention of classroom teachers towards making changes to their practices and associated classroom based teaching behaviours. The changes sought are more than simply "quality assurance" or ensuring alignment against benchmarked "best practices". There is the expectation that the effective and quality classroom teacher is one that considers their classroom teaching practice as an applied science. The relationship to PD and PL is then about how best to enable a framework which acts as a mechanism encouraging specific ways a classroom teacher should think about their teaching and not concentrate as much on other elements of what define the field of education – the problems of class for example, or the financial disinvestments (cuts) over time that the field endures. An important element in this thinking around PD and PL concerns the nature of teaching itself and what constitutes quality and effectiveness in classroom teaching practice especially if it can lead to "pedagogical and curricular innovation and risk taking" (Mockler 2013, p. 37).

There is a sense then that classroom teachers should think about their work in terms of an "applied" performance which fits into an evaluative framework. The elements of the framework are constituted by the clear focus on understanding what effective teaching looks like and how it should be enacted. Importantly, this

will involve relying on an "evidence base" which will help the classroom teacher cohere their teaching practices against what the evidence says "will work" and so will be "effective". An important aspect related to this will be actual material enactment where the classroom teacher effectively mobilizes specific performance and development characteristics of quality and exemplary practice – focusing squarely on student learning outcomes, the latter defined by raising achievement; goal setting; appraisal and commitment to continuous "cycles" of performance and development. This will embed the classroom teacher into an ongoing obligatory series of actions focused at one level on their development and learning as practitioners "on an endless journey of *becoming* [italics original]" (Watson and Michael 2016, p. 272) where their classroom practice is circumscribed by student achievement standards. In other words, the professional development and learning of teachers is about the seamless connection between "the suite of standards" (Watson and Michael 2016, p. 272) which define student and teacher performance and system expectation/s of effectiveness, quality and success.

   A functional imperative of "technical" interest is at work here geared towards the decomposition of pedagogy into discrete optimal units. In line with this is a revised teacher and teaching "competence" which is about optimal efficiency forcing the education "system's reliance on standardization, datafication and conformity around externally imposed norms" (Winter 2017, p. 70) especially in regard to curriculum, teaching practice and assessment. Connected to this is a "precision education" (Williamson 2021, p. 354) movement which is about harnessing "new scientific knowledge from psychology, neuroscience, and biomedicine, twinned with computer science, machine learning, and software engineering" (Williamson 2021, p. 355) as a way of interfering and intervening in how schools and teachers do their work. This is then about an orientation towards a "science of education" and of learning which conceptualizes pedagogy as a results driven value-adding product development exercise. The success and impact of that product development are manifest in the level of strategy and planning invested by the classroom teacher particularly in terms of data utilization as a catalyst for changing practice. The stakes then are raised for the classroom teacher as their practice/performance is caught up in processes of accountability targeting their pedagogy specifically plotting its value as the means by which student achievement is raised.

The autonomous "entrepreneurial" teacher

The popularization of self-management ideas in the field of education with their espousal of accountability have influenced educators' practices and moreover their conceptualization of self. An important consideration in this is the prioritization and promise of more teacher autonomy in terms of "liberating" individual potential and capability. Autonomy in this sense is about the seeming "freedom" gained from a loosening of hierarchical control over work where the autonomous classroom teacher is engaged in the re-shaping of self, drawn towards the central value of an individualized contribution to a productive pedagogic process. This in

more recent times is perhaps conceptualized more in terms of a classroom teacher with the capacity and autonomy to "tailor" specific "bespoke" teaching practice/s centred on the individual needs of individual students. In general terms, the classroom teacher sought is one of action so that the autonomy of person is in effect about productive venture even though the work of classroom teachers falls under system-regulated controls and the formalizations of standardization. Nonetheless any sense of "restricted" teacher autonomy sits alongside the "decentralisation" initiatives of the 1980s/1990s where autonomy broadly conceived incorporates devolution of administrative and other responsibilities downwards.

A connected and no less important consideration here surrounding self-management and classroom teacher autonomy is the transformation in critical sensibilities with respect to the theorization and enactment of pedagogic work involving teaching. This is to suggest that classroom teachers should view their teaching as something which is part of a broader competitive dynamic shifting their focus away from the perceived injustices of an inequitable education and economic system towards how their individual practice/s and labour could work towards positive social and educational outcomes. The point about this is that teacher autonomy is accepted only insofar that it coalesce with the "rationalization" programs of the "new" economy and high-stakes accountability and management mechanisms. That is to say, forms of teacher autonomy which focus less on the purposeful articulation (individual and collective) of informed and critically aware scholarship as it relates to the reproductive inequalities inherent in the education system enunciating and falling in line instead with the cultures of "competitive performativity" (Ball 2003, p. 219). This then is about constraining teacher agency/autonomy so that classroom teachers "are valued solely on the basis of student outcomes [narrowly defined] rather than for their professional judgment" (Quinn and Mittenfelner Carl 2015, p. 746) particularly around matters with a connection to broader social and educational matters.

The curtailment of teacher agentic capacity for voicing and challenging established educational and structural hierarchies coincides with the complex multiplicity of positionings classroom teachers experience through various periods of reform. So whilst classroom teachers have at various points in reform processes been positioned as either "spectators, receivers, implementers and reformers" (Philippou, Kontovourki and Theodorou 2014, p. 628), the changed political relationship between the state and the economy vis-à-vis privatization, marketization and a heightened commitment to labour market flexibility have shifted conceptualizations of teachers' work where the emphasis is more now on forms of pedagogic "entrepreneurialism" as a "valued teacher competency" (Robertson 2016, p. 122). This aligns with the new type of "flexible and 'fast' school" (Robertson 2016, p. 122) that is responsive to economic and educational "market trends". A significant part of this evolving dynamic against teachers' critical sensibility on dominant and inequitable education and other interests is the "system change" mantra of self-managed/autonomous teachers/schools, accountability, effectiveness/quality, datafication and digitization. Importantly, the info-centric nature of contemporary education systems with their reliance on statistics

as the preferred "tool" of choice in judgements about schooling performance have focused attention on these considerations. To this end, they have infiltrated thinking about education sidelining considerations about how highly competitive market-based economic mechanisms work to disenfranchise.

It is on the terrain of economic "market relations" that the individualism of the new entrepreneurial teacher autonomy is asserted. This pivots on a modified pedagogic expertise as a type of productive pedagogic power in which the knowledge and skills of classroom teachers is meant to embrace the potential use values of a competitive globalizing economic order that in schools is enacted through for example standardized testing regimes, maths/science competitions and so on. Whilst schools often promote and "market" these and other student activities, it is classroom teachers who may recommend them and then work with students as part of the in-school program. The important principle at work here consists in validating teacher autonomy via making it the central focus of a re-constructed pedagogy more aligned with the hegemonic hyper-capitalist representations of the current economy. It is in effect about securitizing the pedagogic work of classroom teachers within educational programmes that have been transformed by the global economic and political processes of neo-liberalization (see Harvey 2005).

Importantly, the reworkings of teacher critical sensibilities can be seen in respect of classroom teaching and the emphasis now on teacher effectiveness. The notion of teacher effectiveness and by extension effective teaching involves the specific teaching practices used in classrooms by teachers which bring about measurable "effects" in student achievement (see Clinton et al. 2016). In recent times, two significant lines of argument seem to dominate media and education related policy reports about "best practice" in terms of how to teach – direct or explicit instruction versus guided inquiry based approaches (see Tytler and Prain 2021; Barber and Mourshed 2007). The standard direct/explicit instruction argument is that only effective classroom instructors (teachers) that use "proven and tested" instructional teaching methods improve student learning (Barber and Mourshed 2007). A field-specific example relates to the debate surrounding different approaches to reading. Pejoratively known as the Reading Wars (see Barnes 2021), this persistent educational and policy/academic/media debate over the "best" method of teaching students to read (i.e. whole-language versus direct/explicit instruction) is in many respects an ideological and political "struggle between scientific and socio-cultural approaches to reading education" (Barnes 2021, p. 5) that is about restricting teaching to a particular form of teaching practice. This particular debate is only one example more generally of a broader and more complex discussion around "best practice" teaching methods that work to enhance student achievement. It has historic links with and stems from the school effectiveness/school improvement (SESI) educational effectiveness movement which uses a "scientific" rationale as a basis to advance their arguments. An example involves the recent uptake of "cognitive load theory" which suggests that there are a collection of learning principles which are universal and amenable to specific efficient learning structures and forms and/or

frameworks of instruction (see Sweller, Ayres and Kalyuga 2011). The important point about the prioritization of one "best" method of teaching is that it potentially usurps the autonomy of classroom teachers by having them fixate on direct/explicit instruction and downplay other approaches such as guided or inquiry based learning.

Conclusion

In this chapter, we have endeavoured to make the case that the notion of the self-managed and even "entrepreneur" teacher who "delivers" an approved curriculum perhaps creatively and with innovation, is nevertheless most suited to an autocratic system. This is in contrast to an autonomous and even authentic teacher who is liberated to aesthetically create educative experiences through her agentic capacity. This latter aspect, as we briefly indicated in chapter seven, is dependent on the embodiment of an epistemology of genuine education. This emancipating ontology allows teachers to transcend the constricting nature of an accountability-driven system which myopically focuses on a narrow understanding of performativity strictly structured in economic terms. This transformation from teacher effectiveness to the designing and creation of educationally valuable experiences, requires far more of teachers in terms of their embracing an epistemology such that they become *partners* with the general community, including parents and government agencies, rather than as compliant technicians. Such a transformation is democratic because it provides equality of opportunity to participants – especially teachers – in determining the design, processes and enactment of educational experiences. Such an agentic autonomy is far more akin to a genuine scientific temper and shall be explored further in the following chapter.

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9 Democratizing the epistemology of education

Introduction

Throughout this book, we have explored how contemporary discourses of education, and in particular teaching and learning, have converged to promote amoral and apolitical "scientific" evidence-based epistemologies of the field within which the role of teaching is governed and in which a great many teachers themselves have come to understand their own identity. We have highlighted that these "scientific" discourses do not only fail to offer any understandings of genuinely educative experiences which holistically address the *beings* of both students and teachers, they also fail to truly emulate the practices and principles of science. However, more profoundly, they have detrimentally impacted our educational systems to the point where they are not worthy of democracy. Therefore, in this chapter, we seek to draw together these insights of the currently dominant epistemologies and to offer an alternative approach which is characterized as democratic, scientific and authentic. We argue that its democratic character can be demonstrated by the equal opportunity and autonomy that *all* teachers have to be able to have a say in how their own professional identities are formed and enacted. Its scientific dimension is demonstrated by teachers' initiative to actively experiment with experiences to pursue the potential educative value which they offer. As Bourdieu clearly recognized that genuine science offers challenges to the status quo taken-for-granted beliefs and hence can be recognized as being a source for dissident thinking. Indeed Feyerabend (2011) describes scientific communities as having disunity and conflict, so we come to appreciate that authentic educators and teachers can similarly be recognized by their willingly dissenting and experimental dispositions. This requires that as educators, teachers embody an epistemology of education which is genuinely scientific and democratic. The dynamics and constraints of systems are important aspects in this regard as is a sense of what should stand as the educative opportunity which teachers must somehow grasp. This, we contend, best encapsulates the democratic nature and spirit of a "science of education" in contemporary times.

Democracy as characterized by equality of opportunity

Dewey has brought to our attention that democracy is entirely dependent on educated citizens *being* democratic and is not restricted to a particular form of

governing. He promoted democracy as a "spiritual force" which energizes and directs the interests and the commitment of people. Very succinctly he explained that "democracy means freeing intelligence for independent effectiveness – the emancipation of mind and an individual organ to do its own work', so that "the individual is to have a share in determining the conditions and the aims of his own work" (Dewey 1977, pp. 229, 233). Therefore, we consider that one of the demonstrable characteristics would be that opportunities ought to be available to everyone equally, both for those within school systems such as the students and the teachers, as well as for those beyond schooling such as parents and other members of the community. This same characteristic is similarly acknowledged by Hyslop-Marginson and Naseem (2007) who assert in their book on scientism and education that:

> The only genuine solutions to problems of low student achievement and attainment require addressing the moral imperatives of social justice and equality of opportunity within our societies.
>
> (Hyslop-Marginson and Naseem 2007, p. 124)

We agree with their claim about addressing equality of opportunity and we wholeheartedly agree with their later statement where they argue that the struggle in education research and by extension education more generally, is a political one and to that end educational researchers "must move beyond mere empirical practices that deflect attention from such matters, and become part of the political struggle for the fairer distribution of economic resources within our society" (Hyslop-Marginson and Naseem 2007, p. 124). In our view, the concept of equality of opportunity has been seriously sidelined over time if not abandoned outright. This is as much about the field of critical sociology of education and the scholars that work within it focusing their attention on the problems and issues of the politics of recognition and identity and how these important socio-political themes affect education as it is about policy-makers, governments and some educational researchers relying on overly technized and scientific tools and mechanisms of analysis in the exploration of educational problems. In other words a two-pronged turning away from the socio-analytical importance of the effects of unbridled capitalism on the field of education, that is, "as an overarching form of life, grounded . . . in a mode of production, with a very specific set of presuppositions, dynamics, crisis tendencies, and fundamentalist contradictions and conflicts" (Fraser and Jaeggi 2018, p. 13). That is to say in our view the purely rationalized science of education on offer today is at one level a consequence of an epistemic imbalance which has its roots in avoiding complex matters of political economy; in short avoiding discussions of class. The effect of this is a broad-based acceptance of a form of "scientific realism" (Hyslop-Marginson and Naseem 2007, p. 116) meaning the tolerance, tacit approval and myopic focus on the methodologies and mechanisms of "pure" science in dealing with educational questions.

Brighouse (2000) contends that the ideal of equality of opportunity when spoken about in terms of educational equality means "at minimum, that the resources devoted to a child's education should not depend on the ability of their parents to pay for, or choose well among educational experiences, on the assumption that educational experiences will yield opportunities for the rewards distributed by the labour market" (Brighouse 2000, pp. 122–123). To this end, his definition has normative and practical connotations with an explicit connection to the labour market. Critics of the Brighouse equality of opportunity definition could suggest that he privileges instrumentalist outcomes. His reply to this:

> Principles of equal opportunity are, in general, insensitive to the structure of the packages of burdens and benefits for which equality of opportunity is sought. What we aim for is that, whatever the structure of the packages and patterns of likely outcomes, the competitors for those outcomes do not unfairly face unsimilar outcomes. This is not a problem with principles of equality of opportunity, but with the idea that they are the only principles of justice. It may well be that the final correct theory of justice comments a great deal on the patterns of outcomes, and requires that they are much more egalitarian than we currently have or than principles of equal opportunity alone would demand. But when we are considering how to design educational institutions in the world that we actually live in, one in which the most important goods distributed by social institutions are distributed very unequally, we have a duty to children to prepare them for that world, the one that they will actually inhabit, rather than for some other world which they will not inhabit. Of course, children who face certain poor material prospects may have their lives greatly improved by the discovery of skills and capacities which, though economically useless, are intrinsically rewarding to exercise. But it is no kindness to develop their artistic capacities if that is obviously *at the expense* [italics original] of developing capacities which would be a great deal more instrumental for them in the labour market.
>
> (Brighouse 2000, pp. 124–125)

It would seem to us that many of the major education policies and policy reports of recent decades have indeed been about the privileging of instrumentalist vocational outcomes at the expense of broader holistic educational qualities. At the very least, they generally epitomize a human capital aspect to education which it is thought will underpin the "high skills" knowledge economy of the twenty-first century. Yet, whilst many of these policies and policy reports often espouse the necessity for skill sets which have ready applicability in the market economy of tomorrow with the promise of greater opportunities meaning more high level jobs, higher economic growth and greater productivity, all too often without proactive and specific targeted government support, labour market employment opportunities lag the rhetoric involved (see Brown, Lauder and Yi Cheung 2020). Work by Brown, Green and Lauder (2001) for instance tends to reject the notion that the current capital market economy of globalization and heightened

economic competitiveness "will deliver prosperity, opportunity, and social cohesion" (p. 5). This has to do with the current political and economic direction of nations such as Britain, America and Australia where "free market" ideologies with respect to education, training, labour market trajectories and the workplace mitigate against high skill level creation. Brown, Green and Lauder (2001) claim that far from leading to high skills the current econo-political setup "does not result in high skills or low skills for all, but a bi-skills economy with enclaves of knowledge work alongside large swathes of low waged, low skilled jobs" (p. 5). They go on to argue that the "flexible labour market significantly limits the development of high skilled work because there is little incentive for employers to increase the demand for skilled labour" (Brown, Green and Lauder 2001, p. 5). Brown et al. also comment on the concept of equality of opportunity arguing that it "cannot be taken for granted as a source of economic competitiveness, but rests on a societal commitment to equalizing life- chances regardless of social class, gender, race, or religion. The creation of a high skills society depends on building the societal capacity that harnesses social and economic institutions to the upgrading of skills as a source of efficiency, justice, and social cohesion" (Brown, Green and Lauder 2001, pp. 5–6).

An important contributing influence in the changing context of education and the labour market revolves upon the dissolution of security. The education and economic policy rhetoric of recent decades pushes the mantra of "opportunity". However, there is an obvious opportunity and "outcomes" gap in that whilst there are an increasing number of university-educated graduates and a commensurate deepening of a skills base, there is also at the same time a mismatch between the supply of "high end" labour and the demand for it.

> Today the mismatch between supply and demand is not temporary but endemic. Advocating educational expansion without commensurate job opportunities results in increasingly wasteful competition. The point here is not that a college or university education is of little value, as it may be highly valued by students and have wider societal value, but unless the occupational structure can accommodate increasing numbers of better educated and more highly skilled workers, the expansion of education offers little more than a mirage of opportunity as defined by orthodox theory.
>
> (Brown, Lauder and Yi Cheung 2020, p. 89)

The problem then in aiming for some semblance of equality of opportunity runs into a broader set of impediments; credential inflation, elite monopolization of education via an interconnected framework of social capital and the reduction of education for employability purposes (see Brown, Lauder and Yi Cheung 2020). The impediment of credential inflation is really a problem of misalignment in that the more people with credentials in a labour market of limited job supply the less of an opportunity at hand to land a job one has qualified for. This is symptomatic of the education and economic space when both collide as a social space of transformation. An obvious outcome is the corresponding devaluation in academic

qualification. Pierre Bourdieu extensively studies this phenomenon in his seminal text *Distinction*.

> The overproduction of qualifications, and the consequent devaluation, tend to become a structural constant when theoretically equal chances of obtaining qualifications are offered to all.
>
> (Bourdieu 1984, p. 147)

The struggle to keep up manifests in different ways for different social groups. Upper middle class groups and the elite are in a better position economically and socially to gain from the entrance fees and tuition costs associated with the best private/independent schools and colleges. Competitive struggle by these class groups is maintained through a differentiated process of conservation and transformation. Investment in education at all levels of the schooling spectrum is about an appropriation of privilege and "access to the more powerful and remunerative institutional positions" (Swartz 1997, p. 181).

This is about maintaining a form of narrow exclusionism in that "the rate of return on educational capital is a function of the economic and social capital that can be devoted to exploiting it" (Bourdieu 1984, p. 134).

The reduction of education for instrumentalist employability purposes divides the very nature of it as a discipline so that it meets individual needs only if it attends to the needs of industry and work. In other words, an education and a higher education specifically is about satisfying labour market demands so that any value derived as such from an education is assessed in financial and "job-ready" terms.

> The whole educational enterprise, including new investment, pedagogy, curriculum, and assessment, has been redefined and must be accounted for by the way it contributes to student employability.
>
> (Brown, Lauder and Yi Cheung 2020, pp. 100–101)

The increasing concern with individual entrepreneurialism and economic growth is about an instrumentally constituted positioning of the field of education framing it in economic market-based terms. This privileging of economics over and above politics and its responsibility towards the public good produces its own instrumentalist interventions within the field of education which arise as reform agendas around core work – curriculum, teaching and assessment – that are designed to better facilitate the training and compliance of individuals to global capitalism. It is within this framework, which is heavily enforced through an audit culture, that the pre-eminent role education is now supposed to offer individuals is normalized. Specifically it promotes the capability to engage in a global capitalist economic market through the competences, generic skills sets and knowledge/s required by firms seeking employable "job ready" workers.

In contrast to this privileging of economics, we suggest that it is politics which ought to be paramount and consequently economics should play a subservient

role thus relieving the system of education and the roles of educators from these "job ready" and "globally competitive" slogans.

The political priority of democracy and real-world properties of systems and structures

In this book, we have examined the landscape as to how education systems have become colonized by the interests of rapacious monopolistic capitalism, exercised specifically by global corporations. This approach has become so hegemonic in the West that we now are witnessing the eclipse of democracy (see Grayling 2018; Levitsky and Ziblatt 2018; Vidal 2014; Wolin 2017) in addition to genuine education. Various educators (e.g. Schostak and Goodson 2020) are giving grave warnings to immediately "re-imagine democracy" in order to rescue it from the jaws of authoritarian corporatocracy which is global in scope made possible by its inclusion of the US military industrial complex. In an effort to re-imagine democracy and consequently to reinvigorate the epistemology of education, we once again turn to the works of Dewey.

Dewey championed the values of both democracy and science, and in doing so was able to offer a very different epistemology of education which we argue is as relevant for us today as it was in Dewey's own time. He too prioritized politics over economics and consequently understood that education itself is unable to be given a "definite meaning until we define the kind of society we have in mind" and that this requires that some serious consideration be invested into understanding democracy itself if it is to avoid becoming "a farcical yet tragic delusion" (Dewey 1985, pp. 103–104). In his most well-known book *Democracy and Education*, he explained that democracy involves more that institutions and systems of governing. Democracy is a moral way of living, involving how individuals interact with each other and how they are moved by appropriate desires and aspirations. It is from this that he was then able to identify three powerful motives which he argued ought to be present within education if the ideal of democracy was valued over economic interests. These motives consisted of a love for children, an interest in the welfare of society or the public good, and a desire to pursue truth through rigorous inquiries (Dewey 1977). These three motives are to be united by the "spiritual basis of democracy" which involves the recognition and appreciation for "the efficacy and responsibility of freed intelligence" (Dewey 1977, p. 239).

Giving attention to the third motive of inquiring to pursue truth, which is an expression of a free intelligence, Dewey explained that such inquiring tends to be of a scientific manner. However, his understanding of a scientific inquiry was much broader than the nature of investigations which largely occur in the physical and natural sciences. He explained that "educational science cannot be constructed simply by borrowing the techniques of experiment and measurement found in physical science" (Dewey 1988a, p. 13).

This is because as he outlines later in the same text there is the tendency to assume that by borrowing the techniques and methods of an already established

science "we are already getting the material of a science of education" (Dewey 1988a, p. 13). Dewey is here pointing to the inevitable assumptions inherent in some of the established sciences particularly in large-scale measurements where for example specific designated variables often proxy for some other entity. This is especially problematic in fields such as education when large-scale educational planning, evaluation and policy-making trusts the human capital/rate of return connection between "education to income, with income seen as a proxy for labor productivity" (Klees 2016, p. 646). Klees provides a summary of the problems with the human capital/rates of return argument. As Klees sees it, core assumptions around the notion of efficiency leads to a series of unsound conclusions about the supposed productivity "payoffs" of education. This is not to say that education is of no benefit economic or otherwise. It is to say however that human capital/rates of return evaluations of the economic benefits of education to individuals and society more generally are founded on assumptions of "perfect competition" meaning that there are no barriers incurred by agents as they make decisions about their education. Klees is in effect pointing out that real-world systems such as the education system, the economic system and so on are complex structures. As such, they comprised parts which only fit specific evaluation frameworks if particular assumptions are first made about them, for example, that the investment/s people make in their education are for purely economic and not other reasons (see Klees 2016).

This perhaps points to a broader problem about how we view the real-world properties of systems and structures such as education. Dewey canvassed aspects of this in making reference to the form of American society taking shape in the early part of the twentieth century in his critique of the American urge for the:

> Quantification of life, with its attendant disregard of quality; its mechanization and the almost universal habit of esteeming technique as an end, not as a means, so that organic and intellectual life is also "rationalized"; and, finally, standardization. Differences and distinctions are ignored and overridden; agreement, similarity, is the ideal. There is not only absence of social discrimination but of intellectual; critical thinking is conspicuous by its absence.
>
> (Dewey 1988b, p. 52)

Dewey in one respect is articulating the ascendant compulsion of a form of rationality that in his view and at the time he was writing *Individualism Old and New* was largely about "the utilization of science and technology for ends of private pecuniary gain" (Dewey 1988b, p. 89). This has contemporary connections to the current trends in the field of education where people "are to act in ways that maximize their own personal benefits. Indeed, behind this position is an empirical claim that this is how *all* [emphasis original] rational actors act" (Apple 2006, pp. 31–32). Governmental authorities manifest this claim by "cajoling educators to focus upon the means as if these were good-in-themselves without having the need to reference end purposes beyond measuring activities" (Webster 2020,

p. 25). Kalthoff in borrowing from Latour puts it this way that the "core of human agency is thus a technically framed and performed interaction" (Kalthoff 2005, p. 71).

Central to the rationalization argument is the capitalist drive for forms of instrumental reason which generalizes through technical applications of calculation and control (see Feenberg 2010). This is about universalizing sameness as systemic form dispensing with the complexities of difference. An important feature of this drive to conformity particularly when thinking about economic and educational systems is an apparent formal logic which is at once "simultaneously a logic of efficiency and a logic of closure" (Overwijk 2021, p. 130). It is at once efficient because it deals in ends through the means of calculability – measurement – which "through a logic of commensuration" (Overwijk 2021, p. 130) provides closure because "it commensurates difference by gathering heterogeneous units under a common metric" (Overwijk 2021, p. 131). This when applied in the field of education is in effect a form of discipline that when coated with the "economizing" tendencies of the finance world acts as a strategy and discipline of market competition over the educational.

When major education policy reports address matters of the economy and how educational performance measures up against it, they tend to see things in terms of "systems". System changes in curriculum, teacher preparation, assessment and so on are argued for and modelled on economic representations of performance. Important educational concepts and terms (e.g., growth, attainment, success, learning, capability and so on) are often spoken alongside terms such as "maximise", "equipped", "quality partnerships", "proportion" and so on (see Gonski et al. 2018). This is about the calculation of education as an economic ratio proportioning supposed benefits into performance-oriented categories. So, when talking about leadership as a category of educational importance for example, there is alongside this the focus on how it can drive system and school performance (see Gonski et al. 2018). Similarly, teachers and their teaching practices. In effect the "calculation of something" becomes a de-facto focus of the education system with its attendant "simplification of functions, possibilities, values, daily routines, etc." (Kalthoff 2005, p. 71). In other words, the transposition (re-writing) of the educational into the economic.

Sensing the educative opportunity

When Dewey spoke of the sources of a science of education, he painted a picture of pedagogy and practice which sought development and use of methods of investigation and evaluation if and when applied in education that potentially could contribute to and alter conduct. Dewey asked a series of questions in this regard.

> What are the ways by means of which the function of education in all its branches and phases – selection of material for the curriculum, methods of instruction and discipline, organization and administration of schools – can

be conducted with systematic increase of intelligent control and understanding? What are the materials upon which we may – and should – draw in order that educational activities may become in a less degree products of routine, tradition, accident and transitory accidental influences? From what sources shall we draw so that there shall be steady and cumulative growth of intelligent, communicable insight and power, of direction?

(Dewey 1988a, p. 4)

In asking these questions, Dewey was giving effect to the theorization of education as science. In doing so, he refrained from simply advocating for the application of borrowed "scientific" techniques into the field of education and was moreover concerned with outlining the sources of a science of education. His main contribution to this inquiry into suitable sources was to argue that "[t]he philosophy of education is a source of the science of education" in that philosophy provides the overall general concern to which science can more specifically investigate, where the two operate in "a reciprocal relation" (Dewey 1988a, p. 26). It is from the philosophy of education that working hypotheses arise thereby serving as a main source for a science of education. Without the general overview of desired purposes, such as expressed through a philosophy of education, any science is likely to lose its relation to these purposes as it pursues specific measures. As Dewey (1988a, p. 33) observed, the element "which can be measured is the specific, and that which is specific is that which can be isolated" and unfortunately such isolation has contributed towards the means-end dichotomy within current educational epistemology.

Dewey identified that philosophical purposes or aims are not intrinsic to education itself as an abstract concept, but rather they belong to people such as teachers and parents. Here we are in agreement with Dewey's identification that a significantly important source of any science of education is the philosophy which is held by the classroom teacher practitioner. It is here that the notion of a science of education has any real traction, especially within schools because Dewey sensed that knowledge gained about educational activity is of consequence only insofar as it is mindful of the role of classroom teachers.

For these teachers are the ones in direct contact with pupils and hence the ones through whom the results of scientific findings finally reach students. They are the channels through which the consequences of educational theory come into the lives of those at school.

(Dewey 1988a, p. 24)

This relational aspect was about acknowledging "the complexity of the educative process" (Dewey 1988a, p. 24) such that any worthwhile science of education would draw upon an array of disciplines (psychology, sociology and philosophy) and techniques of inquiry in order to "render the performance of the educational function more enlightened, more humane, more truly educational than it was before" (Dewey 1988b, p. 39).

This then if anything is about articulating the epistemology of education as a discipline which is demonstrable through activity. It is about imbibing the field of education with an intellectual rigour and fortitude that as a major aim has the capacity of enabling students from all backgrounds (cultural and economic) to have the opportunity to lead and live meaningful lives. Kalantzis (2006) in her positing of a science of education suggests that it is composed of three elements. The first element is that of action, which means that a science of education is in essence performative.

> It is not simply a process of thinking, a matter of cognitive understanding. Science consists of the out-of-the-ordinary things we do to know, and to know with an out-of-the-ordinary ability to see the world and know the world. These things are performatives – acts of intervention as well as acts of representation, deeds as well as thoughts, types of action as well as forms of contemplation.
>
> (Kalantzis 2006, p. 39)

Holism is the second element meaning that a science of education is holistic in scope and form eschewing narrowness and the over-reliance "on just one or a few knowledge processes" (Kalantzis 2006, p. 39). The advantage gained through being open to a variety of epistemic traditions is the breadth of view offered into educational problems.

> So, the careful empiricism of observation or experimentation is all the more powerful if measured against the critical measures of personal experience and a cautious eye for interests and agendas.
>
> (Kalantzis 2006, p. 39)

The third element proposed by Kalantzis in her enunciation of a science of education is interdisciplinarity. Kalantzis is concerned here with learning and how we come to know. This, for her, "is a question of such breadth and profundity that it can only be addressed in a truly interdisciplinary way. It means that the content or the subject matter of the discipline needs to be grounded in the theoretically fraught philosophical domain of epistemology" (Kalantzis 2006, p. 39).

Here is where the argument for a science of education ought to begin; in the readiness to identify and then understand knowledge about the intended purposes of educative activity. In other words rather than engage in the search for educational simplifications particularly as they relate to basic outcomes, there is the more ambitious project of cultivating the epistemic sensibilities of an intelligent reasoning or a "freed intelligence" as Dewey referred to it. In contrast to Thorndike who sought to control the work of teachers through his own scientific work, this is about classroom teachers being liberated to draw upon their own pedagogical and disciplinary expertise in order to structure experiences and to foster conceptualization and understanding as they emerge through a process of constant trial and error. It is about classroom teachers utilizing their professional

capabilities as responsible and learned intellectuals, as is their right and preroga-tive as key players in knowledge production. There is the educational imperative for this when consideration is given to the broader contemporary social ramifica-tions of education as a science. Kalantzis on this point states that "life-long and life-wide knowledge as a key factor of production, an economic and thus social fundamental" (Kalantzis 2006, p. 40). That is to say, whilst education, and its aims and purposes seem currently tied to the human capital rhetoric that stresses skills and competencies as part of the accepted knowledge economy infrastruc-ture, it too nonetheless has greater significance beyond this.

The democratic role of "science" in education

Utilizing science in education is about making informed decisions based on the inter-mingling of expertise and experience regarding educational matters that in the end not only allows for but expresses the democratic spirit. This means an eth-ical requirement and commitment to a democratic drive in method/s and aim/s. It is founded on action-oriented principles which draw on the functioning/s of science such that they assent towards particular values "such as intellectual hon-esty, openness to criticism and tolerance" which are also "essential prerequisites for both the growth of knowledge and civil progress" (Barrota 2018, p. 11). Progress here is key in that if science is to be of any value in the field of education it must shed light on the past experiences and restrictive conditions of accepted although imperfect practices and thoughts in order to facilitate change.

> Democracy is possible only because of a change in intellectual conditions. It implies tools for getting at truth in detail, and day by day, as we go along. Only such possession justifies the surrender of fixed, all-embracing principles to which, as universals, all particulars and individuals are subject for valuation and regulation. Without such possession, it is only the courage of the fool that would undertake the venture to which democracy has committed itself – the ordering of life in response to the needs of the moment in accordance with the ascertained truth of the moment.
>
> (Dewey 1899, p. 128)

From the point of view of education, science should be geared towards the fun-damental aspiration of ascertaining as far as is practical knowledge about a matter. In some instances and in time this derived knowledge could act as an accepted and obvious educational "truth". In most instances it is likely to add to the debate about past and current field of education interpretations by corroborating, falsify-ing or clarifying educational problems/issues.

The role of science in the field of education should be one of means *and* ends. This is in keeping with its logic and techniques of inquiry and its facilitation of forms or ways of life. Dewey claims that the "*fundamental principle of democracy is that the ends of freedom and individuality for all can be attained only by means that accord with those ends*" [italics original] (Dewey 1937, p. 338). Science then

should utilize aspects of its logic as method (observation, corroboration, replicability, disinterestedness, critique) and so on (see Collins and Evans 2017) to further an open-endedness of inquiry into educational matters. This is in effect the life form that science in and of education can foster setting itself up as "the force of intelligent organization versus that of organization imposed from outside and above" (Dewey 1937, p. 338).

This is about science as moral force undertaken by educators as moral agents. Education is above all a field that deals with human concerns. Science is technically specialized although this doesn't preclude it of moral values through the thinking and evaluations of educators. Science has a duty to be of human service and in this sense can act as a type of moral arbiter in holding the line against institutional/political excess or ideological fad/creed. It can do this because "*good* [italics original] actions are intrinsic to science's raison d'être" (Collins and Evans 2017, p. 14). There is no glorification of science here. If a science of education has meaning then its value is in the strength of rationalization that it brings to the construction and elucidation of an educational matter.

> The true purity of knowledge exists not when it is uncontaminated by contact with use and service. It is wholly a moral matter, an affair of honesty, impartiality and generous breadth of intent in search and communication. The adulteration of knowledge is due not to its use, but to vested bias and prejudice, to one-sidedness of outlook to vanity, to conceit of possession and authority, to contempt or disregard of human concern in its use.
>
> (Dewey 1927, p. 304)

Therein is the challenge. In short, a science of education based on an ethical and moral framework that informs the field of education which is in harmony with the primacy of a democratic decision-making impetus and equality of opportunity at its core. Dewey made the claim that:

> Science is an instrument, a method, a body of technique. While it is an end for those inquirers who are engaged in its pursuit, in the large human sense it is a means, a tool. For what ends shall it be used?
>
> (Dewey 1989, p. 54)

The challenge for a science of education is in its broadest sense political not scientific. It is manifest in the educational development of human beings affirming the values and characteristics which not only reflect democracy but best exemplify the educative transformation of human minds.

> Yet if scientific method is not something esoteric but is a realization of the most effective operation of intelligence, it should be axiomatic that the development of scientific attitudes of thought, observation, and inquiry is the chief business of study and learning.
>
> (Dewey 1989, p. 60)

To this end, a science of education reinforces faith in the scientific method insofar as it can advance educational work.

Conclusion

This chapter has articulated what a contemporary science of education should be comprised of and seek to achieve. It outlines the qualitative elements of a science of education which are essentially some of the contextual fundamentals that pure "scientific" models of science miss, fail to capture or cannot deal with. This new "science of education" narrative is democratizing in scope and is defined by a different type of teacher socialization the central focus of which must be an assertion of the classroom teacher as a transformative intellectual that resists the teacher as technician and transmitter of knowledge stereotype. This has long been recognized by Dewey (1988a, p. 18) who asserted that any scientific measures or discoveries ought to be employed "to guide the intelligence of teachers instead of as dictating rules of action". In this way, the productive capacity of classroom teachers is reflected in their willingness to and understanding of the educative opportunity afforded them in classrooms as the means towards equality of opportunity and a liberating democratic life with others.

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10 An epistemology of education to be embodied by educators

This book has argued that the contemporary emphasis within the epistemology of education upon a narrow and prescriptive "science" approach leaves unresolved the multifarious particularities which still confound the field of education. The most obvious reason for this is that there are no simple and straightforward causal explanations for anything in the field be it of learning, teaching, curriculum or assessment. Whilst policy-makers may claim on occasion, to turn to education research for understanding complex educational questions and phenomena which then potentially informs change in education policy, the complex nature of the education system means that it remains challenging to research. Conceptual and methodological perspectives in the field often differ, and there is seldom stable focus areas when dealing with human behaviours which act within and against a complex system. Combining conceptual and methodological approaches including using agent-based modelling techniques (see Jacobson, Levin and Kapur 2019) may offer deeper insights into educational questions although definitive answers to complex socially constructed educational problems need multi-variate investigations and subsequent political responses. The latter is not so easy to achieve if dominant agents and/or sectors within the field stand to lose by a diminution of their power, advantage and/or status. We consider that this is significant.

Nonetheless within the field of education the pure "science of education" emphasis continues unabated and without substantial challenge. The language it uses and the justifications it makes for the change it promotes is couched in finance corporate/economic terms: "best practice/s", "research data", "bespoke", "actionable", "core competencies" and so on. Fine-grained measurement is important where the approach to inquiry adopted connotes a "trusted" search for "scientific truth" manifest in the methodology chosen, subsequent analysis undertaken and the derived conclusion/s made. Bias is seemingly absent. There is domination by so-called "evidence" as "incorporated rationalized myth" which in the fields of education and by extension teacher education are marked by the "obsessions over measured value for money and a scientification of public discourse where "evidence" takes the place of moral or philosophical thought" (Helgetun and Menter 2020, p. 11). Room for problematizing conclusions reached via reflective argument is constrained by the

supposed empirical nature of the research and the political justifications that follow its dissemination. This tends to all occur in a political and social context of "tight central control with "evidence" translated through an emphasis on how it will be received by politicians and the general public, not through any academic notions of rigour, robustness or reliability" (Helgetun and Menter 2020, p. 11).

We have chosen to include a Bourdieusian and Foucauldian analysis to examine this "scientific" approach which currently dominates the epistemology of education. We believe our approach for doing this has greatly assisted in exposing this governing agenda which is behind the very deliberate adoption of the presumed *neutral* language of evidence and science which hides political interests. However, as Whitty (2016) and others (e.g. Bridges, Smeyers and Smith 2009) point out, policy-makers don't delve into education research literature to discover findings which may facilitate the improvement of education practices. Instead, they are first and foremost ideologically driven to impose their own agenda upon the system and the workers within it, and so education research findings are simply cherry-picked in policy documents because they seem to support such an agenda. The evidence-based paradigm for educational research is very much based upon how it operates in the field of medicine where randomized controlled trials are upheld as the gold standard. However, even within the field of medicine Peile (2004, p. 112) warns of the very real influence from "the huge amounts of money at stake for the pharmaceutical industry" in sponsoring so much of the research and having so much to gain from it, that he claims that the research activities ought to be referred to as a pharmaceutical "industry" rather than as "research" because of the corporate motive at work. This has been recently supported by Jureidini and McHenry (2022) in light of global mandated vaccinations who claim that the aspiration towards evidence-based medicine is "an illusion" due to political interference and the control of pharmaceutical corporations.

Consequently we assert that the functional role of the contemporary "science of education" is to shield a broader epistemologization of education and attach a normative prescriptive "fail-safe" set of practices to it as a field of power. A "science of education" is not for the framing of educational problems in a way that foregrounds power relations. Instead efficiency and effectiveness and how the latter can better facilitate increased economic production is how a "science of education" makes order of a field characterized by the supposed disorder of differing perspectives and conceptual constructions.

> By naming and representing education as a field in chaos, evidence-based education proponents, with good intentions, are justifying actions and measures to make education systems more evidence-based and in turn standardize and rationalize complex educational processes.
>
> (Shahjahan 2011, p. 197)

A "science of education" mobilizes the framing of educational problems in specific yet reductive ways; classroom teachers are not up to the mark, education systems are not performing, students are not achieving and so on. Large-scale educational agendas are set by external organizations (e.g. the OECD amongst others) with quantitative indicators of performance used as the preferred means of telling a causal story. This tends to gloss over or ignore the messiness of national local space with its associated tensions and situated practices. A "science of education" provides the legitimacy needed to "scientifically" manage educational and by extension social problems. It acts as an organizing process on an otherwise tendentious field the latter inundated by disparate priorities because it provides the causal nexus needed via the appearance of an established objectivity.

We began this book with a question which guided our exploration of the problems connected to a "science of education" – What is the contemporary education policy origin of the compulsion to constitute a "science of education"? An answer to this question exists in the field of education's readiness to adopt or in most instances have thrust upon it techno-rational scientific expertise incorporating the purposive specializations of pure "science" as the appropriate thought system to then focus attention on vexed and complex field related problems. This however is not enough when seeking exploration of underlying social, political, economic and cultural effects on educational problems that also usually link with a historical set of circumstances. So-called scientific objectivity neglects the sociological and philosophical, preferencing perceptions of educational reality in scientific terms thus creating a sense of right or wrong. A "science of education" that strives towards the rational in our understanding of education as a truly human activity is what is needed that is alert to the expediencies of a crushing technical reason that dominates via its instrumentality.

Our conclusion to this is to take seriously what a genuine science of education might look like and how it might contribute towards an epistemology of education that is primarily democratic and emancipatory. As such we have drawn heavily upon Dewey to assist with this consideration. Dewey stressed that one of the most significant sources of any science of education is a rigorous philosophy of education. This is because philosophy operates as a defence against reductive practices which all too often can lose sight of important educational *concerns* such as enabling *all* individuals, no matter what their class background, to have equality of opportunity to participate and make decisions as to how their work and home environments, and indeed society as a whole, ought to be structured and function. Dewey was a proponent for the need for teachers to exercise their agency, like scientists, to explore in their own contexts, what possibilities and innovations may be worthwhile. This is because, he identified that "education is itself a process of discovering what values are worthwhile and are to be pursued as objectives" (Dewey 1988, p. 38) and that teachers themselves ought to embody such aims.

The implication of this means that teachers must be philosophical and scientific, having the trust of society to test, evaluate and judge was is of most

value. That is, they must come to embody their own professionally developed and shared epistemology of education. However, as Bourdieu identified, such "scientific" conduct will regularly challenge the status quo and authority of government agencies and this is not something that they therefore encourage. Dewey was all too aware of this reality, and therefore pronounced that,

> Until educators get the independence and courage to insist that educational aims are to be formed as well as executed within the educative process, they will not come to consciousness of their own function. Others will then have no great respect for educators because educators do not respect their own social place and work.
>
> (Dewey 1988, p. 38)

We ourselves have a great deal of respect for teachers as educators, who are guided by a clear and professional philosophy of educational aims and purposes. Perhaps what is needed is that teaching itself ought to be "rediscovered" as Biesta (2017) has argued, because the embodiment of an epistemology of education is a highly existential affair. When such an epistemology of education is embodied, teachers have a clearer sense and committed desire towards what is morally and politically desirable (Webster 2018, 2020). Dewey (1988, p. 39) also describes this need for teachers to embody what we have described as an epistemology of education, explaining that it enters "into the heart, head and hands of educators" so that through their agency and scientific temper, are able to offer experiences that are "more enlightened, more humane, more truly educational than . . . before'. It is our own desire that this book is able to humbly contribute towards an epistemology of education.

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