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Between education and the economy: high-stakes testing and the contradictory location of the new middle class

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This paper analyzes the contradictory location of the professional and managerial new middle class within the rising tension between old systems of the industrial capitalist model of education, epitomized by a reliance on high-stakes, standardized testing and the newer forms of production associated with the 'fast' capitalism of the global economy. The author argues that the professional and managerial new middle class is faced with a dilemma since they benefit from systems of high-stakes, standardized testing, yet require schools to also teach the types of skills and flexibility associated with knowledge economy. The analysis suggests that this dilemma represents the contradictory class location of the new middle class relative to both discursive and productive resources.

Keywords: high-stakes testing; new middle class; global economy; contradictory class location

Introduction

Current educational policy structures in both the USA and the UK are focused around systems of high-stakes, standardized testing – that is, systems that use the results of standardized tests to mete out sanctions or rewards to students, teachers, administrators, schools, school districts and other official bodies charged with the education of children. In the USA in particular, such testing has been mandated by the federal government vis-à-vis the passing of the 'No Child Left Behind' (NCLB) legislation, where schools are expected to demonstrate increased student test scores or face the loss of federal monies (Karp 2006).

In the USA there has been significant research about various stakeholders and political blocs who stand to either gain or lose from systems of high-stakes, standardized testing. Burch (2006), for instance, outlines how private companies are profiting from the free-market education reforms associated with systems of high-stakes testing. Similarly, Toch (2006) and Jackson and Bassett (2005) explore the relationship between the testing industry and markets created by NCLB. Sunderman and Kim (2005) evaluate the ways in which such policies serve to increase federal powers over local educational agents and agencies. Applying more critical analyses, Brantlinger (2004) interrogates which social and economic groups stand to gain from high-stakes testing, and Apple (2006) explains how a hegemonic conservative bloc operates through and benefits from the creation and implementation of test-based policies such as NCLB.

Aside from Brantlinger (2004) and Apple (2006), however, the relationship of the professional and managerial new middle class (hereafter referred to as the new middle class) and

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educational systems based high-stakes testing is nearly non-existent in the literature and generally remains undertheorized. Such undertheorizing is problematic considering the central position that the new middle class plays within education policy (Ball 2003b). This paper seeks to address this weakness by taking up an in-depth analysis of the relationship of the new middle class and systems of high-stakes testing, arguing that this class fraction is in a contradictory class location (Wright 1997) where it simultaneously benefits from, yet is at odds with, education policies associated with such testing. I begin my analysis with a look at the ways in which the new middle class is advantaged by systems of high-stakes testing. Following Bernstein (1990, 1996, 2000), I then posit that the new middle class, being made up of agents of symbolic control that can be aligned more closely with either discursive resources or productive resources, should not necessarily be viewed as a unitary class fraction and instead be viewed as having the potential for internal contradiction and differing positions relative to schools and the economy. Using Meiksins' (1984) work on the rise of the managerial class within systems of capitalist production, I then argue that the origins of the new middle class can be found within the application of scientific management in industry and education, which gave rise to a class fraction of industrial and educational engineers. I then outline how, similar to their historical antecedents in curriculum design and capitalist production, the new middle class is at odds with the educational system relative to more recent shifts in the global economy.

High-stakes testing and the new middle class

Standardized testing is first and foremost a technology (Madaus 1994), one that enables educational bureaucracies to compare, classify, sort and rank large populations of pupils (McNeil 2000). As a technology, systems of high-stakes, standardized testing are designed for the creation of a set of commensurable numbers (De Lissovoy and McLaren 2003, Lipman 2004) that may be analyzed, compared, organized and correlated, in the interest of carrying out policy functions of punishment or reward for policy-defined failure or success (Smith 2004). In the USA under NCLB, subgroups of students identified along categories of race, socio-economic status, disability and proficiency with Standard English, among others, are required to demonstrate increased test scores in Reading and Mathematics annually, or schools and districts face a loss of federal education funding (Karp 2006). NCLB policy mandate has generated an incredible amount of testing, requiring over 45 million tests be given each year, with an additional 22 million tests to be required once Science is added as a tested subject and as individual states come into full compliance with the policy (Toch 2006). Not only does such testing create a market for private profit, \$517 million for NCLB related testing in the 2005–6 school year by one estimate (Jackson and Bassett 2005, see also Burch 2006), it creates the need for massive bureaucracies and institutions that must not only create and administer standardized tests, but also collect, process, analyze, correlate and report out test-generated data (Toch 2006). It is within such bureaucracies and institutions in education, as well as within corollary professional and managerial ranks of private industry, that we find the new middle class.

According to Apple (2006), in the USA the new middle class along with neoliberals, neoconservatives, authoritarian populists, make up part of a powerful Rightist hegemonic political bloc. This conservative bloc generally knits together a political agenda that includes a mix of capitalist neoliberal economic forms, neoconservative cultural forms, populist individualism and anti-statism, and reliance in technology and efficiency. The influences of this hegemonic bloc are clearly evident where we see the politics and contents of public education being influenced through policies such as NCLB, which, for instance,

opens public education up to free market forms (Burch 2006) while simultaneously making appeals to individual equality and educational efficiency through active use of notions of 'choice' (Apple 2005, 2006; Pedroni 2007).

Within the context of the USA specifically, the new middle class represents a class fraction of professionals and managers that builds its identity around technical proficiency and the idea that efficiency and accountability can solve existing problems (Apple 2006). Parts of the new middle class carve out their essential position *within education* vis-à-vis systems of high-stakes, standardized testing. One result of the predominance of this reliance on technical proficiency is the development of audit cultures (Apple 2006) created by systems of measurement and policy which build upon a form of 'performativity' that Ball defines 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). The performances (of individual subjects or organizations) serve as measures of productivity or output, or displays of 'quality', or 'moments' of promotion or inspection. As such they stand for, encapsulate or represent the worth, quality or value of an individual or organization within a field of judgement. The issue of who controls the field of judgement is crucial. (2003a, 216)

Consequently, due to its pivotal location within policy structures and educational institutions, agents of the new middle class working within education are now in a position to exert significant technical control over educational process and policy: Research in the USA has consistently found that high-stakes, standardized tests are limiting classroom pedagogy and content by increasingly turning teaching and knowledge into step-by-step, production-like processes (Au 2007). Thus, by providing the technical expertise to build psychometric tools like standardized tests as well as interpret their results, these agents not only justify their own existence within state-associated education policy hierarchies, but also assure their residence in sites of power within the bureaucracies and institutions that develop, interpret, implement and communicate policies that use these tools.

It is this technical role that perhaps delineates the new middle class from its Rightist counterparts within contemporary education policy. Apple explains that:

[I]t is important to realize that a good deal of the current emphasis on audits and more rigorous forms of accountability, on tighter control, and a vision that competition will lead to greater efficiency is not totally reducible to the needs of neoliberals and neoconservatives. Rather, part of the pressure for these policies comes from educational managers and bureaucratic officers who fully believe that such control is warranted and 'good'... [T]ighter control, high-stakes testing, and (reductive) accountability methods provide more dynamic roles for such managers. (2006, 105–6)

Apple's above point is important in that it recognizes that the specific and immediate needs of the new middle class cannot necessarily be conflated with the needs of its counterparts within the Rightist hegemonic bloc. Rather, while they, along with others, may promote market forms in both society and education, the new middle class also seeks to maintain systems of high-stakes testing because such systems ultimately facilitate the upward mobility of their children. Following Bourdieu (1984), Apple (2006, 106–7; original emphasis) explains:

The increasing power of mechanisms of restratification such as the return of high levels of mandatory standardization, more testing more often, and constant auditing of results also

provides mechanisms – and an insistent logic – that enhance the chances that the children of the professional and managerial new middle class will have *less competition* from other students. Thus, the introduction of devices to restratify a population ... enhances the value of credentials that the new middle class is more likely given to accumulate, given the stock of cultural capital it already possesses.

Further, as Brantlinger (2004) suggests, new middle class parents take active roles to support the use of tools like standardized tests and policies like NCLB that ensure the value of educational credentials (e.g. high school diplomas) through scarcity, and thus increase the likelihood of their children's success over others (see also, Oakes et al. 1998). This conversion strategy of the new middle class, however, does not require an active, intentional consciousness as a class. Rather, as Bourdieu (1984) argues, this class fraction only needs to act out of its class *habitus*, that is, it only needs to act out of its cultural, social, political and physical embodiment as a class fraction to achieve its upward mobility.

While Apple's (2006) analysis is crucial for understanding the general positioning and functioning of the new middle class in the USA, it is important to bring a more nuanced analysis of the new middle class to this discussion; for while they may share a general class interest and orientation towards success through particular strategies for upward mobility (and a particular relationship to the Rightist hegemonic bloc), the new middle class should not be seen as a unitary or homogenous class fraction in and of itself. For instance, as Ball and Vincent find in their research comparing two different middle class communities' educational choices for their children, there is a 'set of relationships between middle-class fractions and the management and maintenance of space and time ... in their relations to education settings and practices' (2007, 1176), and these choices may differ from each other significantly, despite their shared class status (see also, Vincent, Ball, and Kemp 2004).

In order to understand the nature of the differences within the new middle class, Bernstein's work proves particularly useful. Bernstein (1996, 112; original emphasis) defines the new middle class as a class fraction made up of agents of symbolic control that are:

... related directly to *specialized forms of communication*, institutionalized in religious, legal agencies (regulators), social services, child guidance, counselling agencies (*repairers*), education (*reproducers*), universities, research centres, research councils, private foundations (*shapers*), civil service, central and local government (*executors*).

While Bernstein elaborates in great detail the various differentiations and relations within and between groups that constitute the new middle class, what is pertinent to the present analysis is Bernstein's (1990, 1996, 2000) recognition that agents of symbolic control, while operating primarily in relation to discursive resources (e.g. language, discourses, symbol systems, knowledge production), essentially have some level of crossover between working within the field of symbolic control and working within the field of economic production (e.g. administrators, scientists, managers and accountants). Hence, while all members of the new middle class are agents of symbolic control, some members more closely relate with discursive resources and others more closely relate with productive resources.

What I propose here is that the institution of education, with its various appendages associated with both the state (public sphere) and industry (private sphere), embodies the ways in which the new middle class does have agents operating relative to both discursive/symbolic resources *and* physical/productive resources. Teachers and those working within educational bureaucracies connected with the state (such as those associated with regimes of high-stakes testing) are indeed agents of symbolic control in that they are truly producing,

managing and controlling discursive resources. However, those portions of the new middle class that are more closely associated with symbolic control relative to '*the economic base of production*' (Bernstein 1996, 112, original emphasis) still enrol their children in schools (sites of discursive reproduction) and rely on the system of education and its agents of symbolic control to help secure the social and economic advantage of their children. Thus, I would argue that schools are one place where both the discursive and productive aspects of symbolic control operate simultaneously. Indeed, this is perhaps the underlying argument of my analysis here, because schools and educational policies then become a site of tension when discursive aspects of symbolic control (vis-à-vis education and high-stakes testing) come into contradiction with the productive aspects of symbolic control contingent on shifts in the new economy. These internal relations of the new middle class will lead me at different times and places in this paper to discuss the new middle class generally as well as more specifically as agents of symbolic control more closely associated with either discursive resources or productive resources, and my use of the new middle class as an analytic category here is thus intended to recognize the mixed and sometimes differing interests and positions of those within this class fraction itself.

It is important to recognize that neither the positioning of the new middle class within systems of education, nor the potentially contradictory relationship between parts of the new middle class is so 'new'. Rather, as I shall explain in the following section, they are in many ways the structural progeny of an ascendant class fraction of engineers and educational experts that arose within the milieu industrial capitalism, scientific management and the application of technical rationality to both production and education in the USA at the turn of the twentieth century. Further, as I will argue, the educational professionals and managers associated with the contemporary new middle class face a similar predicament as their historical antecedents: Their status and reproduction as a class fraction is in part reliant upon old forms of capitalist production, while their future upward mobility and success is in part dependent on the new.

Engineering the new middle class

High-stakes, standardized testing is a contemporary manifestation of the legacy of scientific management in education in the USA. In the early 1900s, as part of the social efficiency movement, educational leaders began applying aspects of Frederick Taylor's conception of scientific management of factory production to the structures of schooling (Kliebard 2004). For Taylor, efficient production relied upon the factory managers' ability to gather all the information possible about the work which they oversaw, systematically analyze it according to 'scientific' methods, figure out the most efficient ways for workers to complete individual tasks and then tell the worker exactly how to produce their products in an ordered manner (Noble 1977). Scientific management thus represented a form of 'technical control' (Apple 1995) over labour, where the logics of control are embedded in the very structure of the process of production itself.

Leaders in the emerging field of curriculum development and school design began to make active use of Taylor's logics within educational reforms. John Franklin Bobbitt, a well-known advocate of applying scientific management to education, perhaps epitomizes this trend (Kliebard 1979). According to Bobbitt (1920), productive efficiency in education is built upon the scientific predetermination of objectives that fundamentally drive the entire process of education, and specific objectives for students are based on their predicted future social and economic lives. Within Bobbitt's educational model, whether or not students are meeting these objectives would be measured through the establishment of standards, with

standardized tests being used to measure teacher effectiveness. Further, according to Bobbitt (1913), it is the job of the administrator to gather all possible information about the educational process to develop the best methods and tell teachers exactly how to get students to meet the standards.

Bobbitt's (1912, 1913) use of scientific management structures education along the lines of industrial capitalism, which was booming during this time period in the USA: Students are the 'raw materials' to be shaped into finished products according to their future social positions. Teachers are the workers who employ the most efficient methods to get students to meet the predetermined standards and objectives. Administrators are the managers who determine and dictate to teachers the most efficient methods in the production process. The school is the factory assembly line where this process takes place. While Bobbitt was just one prominent leader in the field of curriculum, he was not alone: other educational leaders in the USA such as Cubberley, Snedden, Thorndike and Spaulding also openly advocated educational reforms associated with scientific management and industrial capitalism (Callahan 1964; Hursh and Ross 2000).

The reliance on scientific management to structure the process of education performed three key functions important to the present analysis. First, it imported the logics of technical rationality into education. As Posner (1988, 80; original emphasis) explains, this type of logic assumes that, 'it is a *technical* matter to decide such issues as instructional method and content, a matter best reserved for people with technical expertise about the methods and content optimally suited for particular objective'. Such technical precision allowed the curriculum to be broken down into minute units of work that could be determined in advance, taught in a linear manner, and easily assessed (Apple 2000; Smith 2004). Kliebard (1979, 75) thus explains that 'Curriculum development became an effort to standardize the means by which predetermined specific outcomes might be achieved'. Second, scientific management also maintained and justified socio-economic hierarchies and social stratification because the development of such 'scientific' curriculum included the measurement and prediction of a student's future, with the prescription of appropriate content to match that prediction (Bobbitt 1912; Kliebard 2004). Kliebard (1988, 25) remarks:

... [A]n important concomitant of scientific curriculum-making became curriculum differentiation in which different curricula were prescribed for different groups depending on certain characteristics. These criteria included some measure of native intelligence, probable destination (particularly whether one was destined to go to college or not), and even social class. In this way, the curriculum could be geared directly to the activities one needed to perform in one's adult life.

Third, the application of scientific management in industry and education justified the existence of an ascendant class of professionals and experts in both arenas, where these 'engineers' asserted their expertise into the technicalities of production generally. In industry they engineered the design of production lines and in education they saw themselves as engineers of curriculum development and school design.

As Meiksins (1984) explains, the rise of this class fraction of engineers began with the transition to industrial capitalism, where the advent of large-scale production posed a dilemma for the once semi-independent, technically skilled, small shop engineer of the nineteenth century USA. As small shops disappeared under the growing shadow of industrial capitalism, these engineers began losing their autonomy and were increasingly employed by large production facilities in need of their technical expertise. This change transformed the role of the engineer, who, according to Meiksins (1984, 188):

... was shifted from his old role as proprietor of a small machine-shop to the role of employee of a large capitalist organization. He had become part of the complex, collective labor process created by the dynamics of modern capitalism.

Scientific management can thus be understood more generally as a response of this class fraction of engineers to their new, now less autonomous position within the process of production. Taylorism was thus in reality, as Meiksins (1984, 189; original emphasis) explains:

... a kind of engineering ideology; a response to changing circumstances which offered, at once, to solve the problem of organizing the workplace and the labor of conception *and* the problem of how engineers could retain some of their traditional autonomy.

As 'a kind of engineering ideology', Taylorism represented a form of symbolic control asserted by those more closely related to productive resources. Similarly, as early agents of symbolic control more closely related to discursive resources, curriculum experts like Bobbitt, Charters, Thorndike, Spaulding, Cubberley, Snedden and others justified their own existence in the process of education by asserting the need for their expertise in order to run the schools efficiently and 'scientifically': They became the professional and managerial engineers of education and sought to benefit from their relative privilege within educational institutions.

Based on the above discussion, we can see how the contemporary new middle class, particularly those members associated with educational bureaucracies and systems of high-stakes testing, is in many ways the progeny of the educational engineers associated with scientific management and schooling in the early 1900s in the USA. Contemporary agents of the new middle class associated with discursive resources in the field of education, similar to the curriculum experts of old, possess a deep trust in technical rationality to fix educational problems, and it is a trust that serves the upward mobility of the new middle class as a whole. Similarly, just as this technical rationality arose out of the application of models of scientific management associated with industrial capitalist production to education at the beginning of the twentieth century, the contemporary new middle class as a whole draws upon the logics of individual competition and capitalist production associated with the neoliberal economics (Apple 2006). Further, even though the new middle class cannot rely on the language of social engineering and the predicted vocational destinies of students to justify educational inequalities (as their historical counterparts did), they still justify inequality in society and education, albeit through the maintenance of an ideology of meritocracy and equal opportunity for individual achievement (Bisseret 1979; Sacks 1999). Finally, like the engineers who sought to secure their position within industrial capitalist production, the new middle class secured its position within policy structures, institutions and bureaucracies vis-à-vis their importance of their symbolic work as part of the technical operation of discursive 'production' both in schools and industry.

In terms of the position of the new middle class relative to contemporary systems of high-stakes testing and education policy, however, another parallel with the turn of the twentieth century exists. Just as small shop owners and producers had to struggle to create a niche as engineers when faced with the contradictions posed by the increasing hegemony of large-scale, industrial capitalism, the new middle class finds itself in a similar predicament: While their status is reliant on policy structures associated with high-stakes testing, such policy structures are being challenged by the 'fast' capitalist impulses growing in strength and influence within the global economy. It is to this growing contradiction that my analysis now turns.

High-stakes testing and school reform in the era of globalization

By and large, current educational structures in the USA grew out of the period of capitalist expansion associated with mass production and factory assembly lines, discussed above, and there are aspects of the current system of education in the USA that manifest this structure as well as maintain the logics of technical rationality associated with it (Callahan 1964; Apple 1979/2004, 1995). These aspects include the factory-like organization of schools (large populations being moved at regular intervals through an assembly line of teachers), the vertical hierarchies between administrators, teachers and students, and the linear means-ends rationality embedded in standardized testing. These more rigid and less flexible attributes, which reflect the 'old' industrial capitalist economy, are sharpening the contradiction between schools and the 'newer', more flexible, formations that capitalist production has taken in recent decades (Kalantzis and Cope 2000).

Increased global integration of the capitalist economy has created networks and circuits of capital that reach across international boundaries with new intensity and speed (Carnoy et al. 1993; Greider 1997; Hardt and Negri 2000). Information and technology's increased importance in the process of production is paramount, where nations with more developed capitalist economies export their factory production operations (and, increasingly, some of their knowledge production) to poorer countries while simultaneously developing a reliance on the production, exchange and use of knowledge (Castells 1993). This economic transformation has also called upon a growing number of service workers to be reskilled to increasingly rely on the processing of information (Collin and Apple 2007). Thus, as Castells (1993, 18; original emphasis) observes, in nations with more developed capitalist economies, these changes result in:

... a profound transformation in the *organization* of production and of economic activity in general. This change can be described as shift from standardized mass production to flexible customized production and from vertically integrated, large-scale organizations to vertical disintegration and horizontal networks between economic units[T]he matter at hand is not so much the decline of the large corporation (still the dominant agent of the world economy) as it is the organizational transformation of all economic activity, emphasizing flexibility and adaptability in response to a changing, diversified market.

In these economies, instead of the old-style corporations with large numbers of permanent workers organized in strict hierarchies of control (as was the case with the older industrial forms of production), we now see more and more businesses with increasingly flattened organizational structures that distribute their production into smaller, faster, more flexible and more adaptable units – resulting in what has been called 'fast' capitalism (Gee 2000). This economic transformation raises interesting contradictions for the new middle class because their reproduction as a class fraction is at least in part reliant upon their successful negotiation of systems of high-stakes testing for upward mobility generally, as well as upon the status of some members of their ranks who are experts within vertical hierarchies of control associated with policies like NCLB.

The contradictory location of the new middle class

The significant shifts in the economy over the last 30 years have placed particular strains on the new middle class. Given that 'fast' capitalism still operates on profit motive, economic power and the exploitation of labour globally (Brown and Lauder 2006), intensified globalization and the exportation of factory production to poorer countries has made many workers in the USA 'working class without work' (Weis 1990, 2004). Further, the increased

interknitting of the global economy has also led to increased competition (and falling wages) for white collar, technical work in the USA (Brown and Lauder 2006). Hence, under current economic conditions, the relationship between education and occupation has tightened, as educational credentials take on amplified significance relative to intensified occupational competition for the new middle class. As Ball (2003a, 20) observes:

In all this the imagined futures of the middle classes and those of their offspring are now under threat from the unmanaged congestion in the old and new professions and in management positionsThe response of the middle classes to the increase in insecurity and risk involved in their established strategies of reproduction has been an intensification of positional competition.

Thus, regimes of high-stakes testing have taken on increased importance as the professional and managerial new middle class seeks to create less competition for their children while simultaneously adding to the value of credentials that members of the new middle class are more likely to accrue (Apple 2006).

It is here, however, that the new middle class is posed with a significant contradiction, regardless of their specific relationship with either symbolic control relative to discursive or productive resources. Even as systems of high-stakes, standardized testing increase the likelihood of their own children gaining academic success, such testing also structures the educational experiences of their children in ways that limit their abilities to develop the kinds of flexible skills and literacies they will need to be successful and upwardly mobile within 'fast' capitalism. As Collin and Apple (2007, 445–6) observe:

... [W]hile systems of educational markets and high-stakes standardized testing may (re)create for white middle-class students environments in which they can maintain their privileges and close out students from marginalized groups, such systems interfere in certain ways with the workings of the forms of ... production that drive the informational economy.

The contradiction faced by the new middle class is thus not so distant from the engineers at the turn of the twentieth century, who, when faced with the 'new' industrial capitalism of their times, were forced to struggle with the tension of needing to find a place in the ascendant form of commodity production, even though their earlier status lay with their technical expertise as small shop engineers (Meiksins 1984).

In their contemporary dilemma, the future reproduction and upward mobility of the new middle class is at once tied to the shifting form of commodity production in the new configurations of neoliberal, free market global capitalism *and* tied to their reliance upon institutional bureaucracies and policy structures associated with commodity production from the older, more bounded configurations of industrial capitalism. Put differently, while the new middle class benefits from increased competition of individuals within the free market forms of 'fast' capitalism, their status and privilege have been gained and maintained through their successful utilization of systems and institutions that rely on the 'old' and 'slow' form of capitalist production – including the technical rationality of high-stakes, standardized tests and factory-like structure of schools in the USA. This positioning is akin to what Wright (1997) calls a 'contradictory class location', where members of the professional and managerial new middle class are in part dominated through their subjugation to the processes of capitalist production, yet dominating in their ability to make use of and benefit from educational policies that provide them and their children advantage over the working class and poor (see also, Brantlinger 2004), even as these policies may contradict the very same processes of capitalist production.

Contemporary policy initiatives and the new middle class

Concretely, the contradictory location of the new middle class is apparent in an education policy initiative in the USA launched by the New Commission on the Skills of the American Workforce and their report entitled, *Tough choices or tough times* (National Center on Education and the Economy 2006). This commission is made up of corporate Chief Executive Officers past and present, professors from prominent colleges of education, current and former union leadership, school district leadership, former politicians and high level cabinet members within the USA government (including former USA Secretary of Education, Rod Paige), and university and school district chancellors. *Tough choices or tough times* attempts to address the tensions between the global economy and current educational structures. It critiques the public school system for being outdated, inefficient and insufficient in its training of a new generation of 'innovative' workers necessary to keep the USA competitive in the global economy.

In light of these critiques, *Tough choices or tough times* recommends a complete overhaul of the USA system of public education and teacher preparation. Among others, it suggests current teacher education policy be 'scrapped', and that each state needs to set up a 'Teacher Development Agency' to centralize and coordinate the recruiting, training, certification and eventual placement of new teachers. The report further recommends the dismantling of current structures of teacher retirement and benefit programmes and reshaping them along the lines of private corporations, including a pay-for-performance salary structure. Further, the report suggests the establishment of new 'board exams' based on standards that are competitive with other countries internationally, advocates for schools to be run by 'independent operators', and proposes that 'regional economic development authorities' made up of key economic leaders be established in order to coordinate schools' curricula to ensure that students are developing the skills and attaining the knowledge needed to be successful in the current labour market.

The *Tough choices or tough times* policy initiative illustrates the contradictory class location for the new middle class in the USA. On the one hand, it calls for a general overhaul of both teacher education and public education, in many ways dismantling the bulk of an institution that clearly benefits their reproduction as a class vis-à-vis their children's success in school. The new middle class, in its current dilemma, may recognize that such a measure might be necessary given the types of education their children will need to have increased upward mobility in the new economy (Collin and Apple 2007). On the other hand, the *Tough choices or tough times* initiative still maintains the need for national standards and examinations, keeping the policy tool that the new middle class uses to maintain its status while out competing other groups in education and society. Thus, the *Tough choices or tough times* initiative illustrates the imperative for the new middle class, who must negotiate between an old system which benefits them greatly and the need to find mechanisms of upward mobility in a new system that potentially seeks to negate their position of privilege if they do not keep up with its changes.

Conclusion

In this paper, I have argued that within education in the USA the contemporary new middle class is the structural progeny of the class fraction of engineers in education and industry that arose in the early 1900s with the rise of scientific management and the advent of industrial capitalism. I further argued that the new middle class finds itself in a contradictory location relative to systems of high-stakes, standardized testing and the rapidly shifting structures of the global economy: They both benefit from and are at odds with the

way test-based systems of schooling educate children. This may be the case because the new middle class itself consists of agents of symbolic control more closely connected to discursive resources and agents of symbolic control more closely connected to productive resources. Subsequently, systems of economic production requiring new configurations and new forms of symbolic control relative to productive resources and systems that rely on the symbolic control relative to discursive resources (such as those associated with education) may fall out of step with each other, causing the maintenance of one part of the new middle class to be potentially at odds with another. In essence then I am extending the argument of Ball and Vincent (2007), by asserting that, within the context of education policy in the USA, one possible material basis for contradiction within the new middle class can be identified when the field symbolic control is in conflict with the field of economic production. Indeed, this contradiction, one that exists outside of the new middle class, yet also manifests as a contradiction within it, may in part speak to the complicated relationship that exists between schools and the economy more generally.

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Notes on contributor

Wayne Au is an assistant professor in the Department of Secondary Education at California State University, Fullerton. He is an Editor for the social justice education journal, *Rethinking Schools* and his book, *Unequal by design: High-stakes testing and the standardization of inequality*, is forthcoming from Routledge.

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