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Gramsci's Contradictions in Mathematics Education Research Positionality

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ABSTRACT: This paper considers ways in which our positionality as mathematics education research (MER) scholars leads to contradictions between our theory and practice in relation to equity. I draw from Gramsci's theorizing about *traditional intellectuals* and *hegemony* to ground the relationships between MER scholars, teachers and students in an understanding of U.S. class relations and the function of the State in mediating them. Constraints and contradictions in achieving equity are related to broader roles of education reform in maintaining the State as well as local antagonisms between MER scholars, teachers and students. For Gramsci, consent to class relations is secured in large part through culture and ideas. Thus, I consider how the dominant theory of learning and pedagogical framework in MER – constructivism – facilitates consent to the relationships between MER scholars and the labor of teachers and students.

Keywords: Educationalization, Equity, Gramsci, Mathematics Education

I. Introduction

In mathematics education research (MER), the commitment to egalitarianism is often voiced but difficult to find within the day-to-day of research activities. MER is carried out in universities with selective admissions processes, including mathematics test scores and training. If one was a teacher before entering graduate school, there is a sense that one has become something else and above: an expert. In attaining this elevated status,

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social network, credentials and improved possibilities for upper-middle class paychecks and lifestyles, one also achieves a special understanding about what is needed for equity in mathematics classrooms and at large.

The MER community often stops short of enacting constructivist pedagogy,² let alone egalitarianism through constructivism. MER conference participation structures and publication processes are often the opposite of what is advocated in constructivist research. For example, conference talks generally involve traditional instruction, and the publication process privileges some researchers' ideas over others. Speaking of educational research at large, Labaree (2005) notes "in fact, we do not even practice progressivism [constructivist pedagogy] in our work, as seen by the way we carry out our research and the way we train teachers" (p. 278).

The idea that constructivism is egalitarian with respect to students is also troubled. Constructivism claims to increase students' power to construct knowledge relative to teachers and experts, but this power is constrained by the fact that – even in the inclusive classroom in which there are many ways to make valued contributions – there are still many ways to get a problem wrong. A number of scholars have also argued that for students of color and poor and working class students, constructivist pedagogy may reproduce inequities (e.g. Delpit 1986, 1988; Lubienski 2000, 2009) and be improperly imposed (e.g. Fallace 2011, Margonis 2009, Perlstein 2015, Richardson, 2003). Constructivism's emphasis on preserving the specific interests of students over the interests of disciplinary authorities stands in awkward contrast with the dominant position in MER that constructivism is best practice for *all* students.

There are further contradictions in the relationship between MER scholars and teachers. The predominating approach to equity in MER is *interventions on* teachers on behalf of students. This is carried out through curricular revision, teacher training, and

² Core prescriptions of constructivist pedagogy include mitigating overt displays of epistemological authority on the part of the teacher, drawing from students' prior knowledge and experiences, teaching content with meaning and through problem-solving as opposed to by rote, working in communities geared around communication and shared goals, and teaching tolerance and positive self-concepts. Each of these emphases is intended to engender democratic goals: to enhance the participation and agency of students within the math classroom, typically as a vehicle to increase economic and political access for marginalized groups in the broader society.

professional development. However, as MER scholars we generally view ourselves as *advocates for* teachers. The mission statement of the National Council of Teachers of Mathematics (NCTM)³ is illustrative:

The National Council of Teachers of Mathematics is the public voice of mathematics education, supporting teachers to ensure equitable mathematics learning of the highest quality for all students through vision, leadership, professional development, and research (NCTM Board of Directors 2016).

In addition to supporting teachers by intervening on them on behalf of students who will otherwise not be ensured equitable or high-quality mathematics learning, NCTM and MER scholars support them by providing their public voice and leading them. In sum, NCTM and MER provide a service of creating and representing students' *and* teachers' interests, and by representing them as at odds in ways that can only be reconciled by our own expertise.

This presentation leaves out key parts of the story. MER scholars have demonstrated the relevance of many contextual factors to math learning, including the nature of classroom interactions and materials, racial and gender identity, and the role of the body. The commitment to equity in MER is responsive to the desires of marginalized groups to gain improved access to education. It is particularly important in the United States, where there is extreme hostility toward the interests of marginalized groups.

Additionally, the pedagogical ideas advocated by MER have enriched the school math experiences of students and teachers alike. Attention to understanding and communicating about math are a response to public awareness that often school mathematics does not make sense, is unrelated to life outside of the classroom, and is generally unpleasant. Teachers want to know how to teach math more effectively to every student in their class and how to make it engaging and useful. Many teachers seek out professional development opportunities and are members of NCTM even though it is not required.

³ NCTM is a professional organization for mathematics teachers that is closely associated and overlapping with United States MER.

So, how do we make sense of our work as MER scholars in an enterprise that seems to restrict egalitarian possibilities, yet has an attractive and commendable program for building knowledge and is responsive to public concerns about school mathematics and its role in reproducing inequity? Building on MER scholarship addressing contradictions between MER theory and practice in relation to equity, this theoretical paper considers MER as an intellectual project, or rather as a project of intellectuals. To do this, I consider concepts developed by Italian Marxist organizer and political theorist Antonio Gramsci (1971),⁴ who asked what distinguishes the activities of intellectuals “from the activities of other groups” (p. 8) and noted that:

The most widespread error of method seems to me that of having looked for this criterion of distinction in the intrinsic nature of intellectual activities, rather than in the ensemble of the system of relations in which these activities (and therefore the intellectual groups who personify them) have their place within the general complex of social relations. Indeed, the worker or proletarian, for example, is not specifically characterized by his manual or instrumental work, but by performing this work in specific conditions and in specific social relations. (p. 8)

Therefore, an analysis of intellectual activities should consider the historical form of capitalism and the class relations in which said intellectuals are located. In this paper, I discuss this in terms of ‘broad scale’ class relations in the United States, between the working class and capitalists, and on a ‘local scale’ in terms of class relations between MER scholars, teachers and students.

Rather than forgetting “the intrinsic nature of intellectual activities” in this class-centered form of analysis, Gramsci helps us re-consider culture and ideas as playing important roles within class relations. Coercion notwithstanding, people often consent to class relations through the appeal of attractive ideas in a process called *hegemony*. Attractive ideas are not random or merely forced upon people, but are rather partial

⁴ Gramsci wrote his *Prison Notebooks* between 1929 and 1935 while imprisoned under Mussolini’s fascist regime. This was also a time of massive industrialization and progressive education reform in Italy. Gramsci took a strong interest in education reform because of his desire to train working class students to be revolutionary Marxist intellectuals. Thus, Gramsci’s commentaries on education, the relationship between education and intellectuals, and the shifting culture of work are apt for analyzing our present situation.

concessions to their own demands or criticism. In short, some or even many stakeholders are able to get a limited version of what they want. I will argue that our work in constructivist pedagogy within MER provides this form of attractive partial concession to students, in order to secure their consent to ‘broad-scale’ or ‘global’ class relations between capitalists and workers in the U.S. It also provides a partial concession to teachers, in order to secure their consent to their more ‘local’ class relations with MER.

Additionally, Gramsci theorizes how the position of intellectuals is contradictory. This is a key problematic for Marxism, and Gramsci (1971) states that Marxism

is a consciousness full of contradictions, in which the philosopher himself, understood both individually and as an entire social group, not only grasps the contradictions, but posits himself as an element of the contradiction and elevates this element to a principle of knowledge and therefore of action (pp. 404-405).

In Marxism, intellectual specialization is required to organize and lead the revolutionary working class. However, this involvement is contradictory in a movement in which workers are to be self-liberating. Additionally, intellectuals work in reformist ways to repackage the demands of the working class as partial concessions or attractive ideas. Finally, as intellectuals we tend to act in our own interests, which are not always the same as those of the working class.

Gramsci worked out his theory of intellectuals as an attempt to resolve these problems. Part of his proposed solution was the development of Marxist intellectuals drawn from and retained by (“organic to”) the working class. Another part was to charge revolutionary intellectuals with merging their practical action and their theoretical consciousness.⁵ Typically, intellectuals’ practical action betrays a “real” politics that contradicts their theory.

In this paper, I borrow from Gramsci in order to ground contradictions between theory and practice in MER within the class relations in which we work. Constructivism plays a particular role in securing consent to these class relations. The next section (Section II) provides a review of how MER scholars have conceptualized contradictions

⁵ See Karabel (1976) for a helpful discussion on Gramsci’s contradictions of intellectuals.

between theory and practice within MER. Section III describes MER scholars' positionality as intellectuals within Gramsci's framework. Section IV relates MER scholars as intellectuals to 'broad scale' class relations between the working class and capitalists in the U.S. Section V provides detail on 'local scale' class relations between MER scholars, students and teachers. Section VI is a discussion.

II. Literature Review- Contradictions Between Theory and Practice in MER

This section reviews how MER scholars have characterized contradictions between equity-related goals in MER (i.e. theory) and MER practice. Namely, MER scholars are responsive to the needs of marginalized students, but are responsive in limited or reformist ways. Critiques of contradictions between theory and practice in MER have centered on the relationship between MER and the interests of (a) marginalized students, (b) capitalists or elites and (c) MER scholars themselves.

A. Representing Subaltern Interests

Gramsci theorizes that intellectuals are responsive to demands on the part of the subaltern, or subordinate groups or classes including women, people of color and the proletariat.⁶ However, intellectuals are responsive to these demands in limited and/or reformist ways. Gutiérrez (2013) points to this tension between responsiveness (in theory) and reformism (in practice) when she states, "it is undeniable that "talk" of equity has become more mainstream in the mathematics education community" (p. 38). Scholars have often discussed this tendency toward "talk" or rhetorical equity (e.g. Martin 2003; Meyer 1989; Pais 2012, 2013, 2014; Secada 1989; Stanic 1989), and that conceptualizations of students and identity-related concepts such as race have been deficit or under-theorized (e.g. Gutiérrez 2002, 2013; Lubienski 2009; Martin 2009, 2013; Nasir 2016).

⁶ Gramsci's use of "the subaltern" to index marginalized groups (and often a plurality of marginalized groups simultaneously) varied over time and across Notebooks. He was unable to finish his work on the topic due to his incarceration and early death. See Green (2002) for an account of Gramsci's discussions of the subaltern. See Hall (1986) for affordances and limitations of Gramsci's theories for studying racism and Wilderson (2003) for the impossibility of Gramsci's theories when faced with the black subject.

Reforms have also been critiqued for losing the specificity of the circumstances and needs of student groups for whom they claim to produce equity. Constructivist pedagogy, while intended to include subaltern students, provides new normative concepts (e.g. problem-solving) and interactional expectations (e.g. around communicative skill and exhibiting a tentativeness toward ideas) that may serve to exclude them (Llewellyn 2016; Popkewitz 1998; Walkerdine 1988). Lubienski (2000, 2009) notes a discrepancy between the constructivist notion that acknowledging students' different contributions as valuable is equitable and the perceptions of "lower SES" students in her study that this was not an effective pedagogy. A number of other scholars have noted that MER ignores the larger inequitable schooling and economic contexts in which reforms occur (e.g. Apple 1992; Gutstein 2010; Martin 2003; Pais 2014; Secada 1989; Stanic 1989; Tate 1997).

There is finally the issue of *who* ideas about MER come from – i.e. scholar positionality – for conceptualizing equity, and the relevance of group social and power dynamics. Secada (1995) discusses how politics within MER function to marginalize and silence concerns about equity. Martin (2011) directly addresses positional issues by considering MER scholar racial positionality: MER excludes people of color, operates on white frames of mind as if they were neutral or natural, and is based on the thinking of white elites. In turn, this shapes how MER configures itself in relation to students of color. Gutiérrez (2013) argues generally "it is from the views of subordinated individuals and communities that we will learn how to rethink mathematics education" (p. 39). Without specifying class relations in shaping MER, Gutiérrez's statement partially echoes Gramsci's concern about the reformism of bourgeois intellectuals. Ultimately, Gramsci argued the need to develop revolutionary "organic intellectuals" from and retained by the working class. For these intellectuals, it would be easier (although not necessarily easy) to merge their practice as working class people with their (specifically Marxist) theory.

B. Sharing Agendas with Elites (Including Capitalists)

Another theme is that MER scholars have shared ideological and material agendas with elites and linked them with equity-related goals unproblematically. Some critiques discuss which elite agendas MER scholars should not engage with – i.e. conservative ones – such as how the standards movement relates to privatization and marketization in education, as well as their globalization (Apple 2000, Ernest 2009, Gutstein 2010); U.S. national defense (Gutstein 2010, Secada 1989); or conservative goals in general (Apple 1992, 2000).

Other critiques argue that MER scholars should not engage with elite agendas at all. Here, the drive of *capitalist* elites to collect surplus value from workers and accumulate capital is often more explicit. For example, the participation of MER scholars in standards-building serves capitalists' interests in human capital development (Apple 1992; Gutstein 2010; Popkewitz 1987, 1988; Secada 1989; Wolfmeyer 2014) and selling testing and curriculum materials (Wolfmeyer 2014). Constructivism updates human capital and governance in the interest of capitalists and the military (Pais & Valero 2012, Popkewitz 1998, Walkerdine 1988, Wolfmeyer 2014). Finally, MER scholars are drawn into elite agendas through corporate employment (Wolfmeyer 2014).

Why has it been natural for MER scholars to forge allegiances with elites, and to link these allegiances with equity? Why is it that internal criticism of these allegiances is published in MER journals? Gramsci provides tools for understanding how allegiances between MER scholars and elites are apparently natural, but also viewed by researchers with some ambivalence such that they may “call each other out” on these activities.

C. In the Interest of MER- Research is Power

MER scholars employing poststructural theories have interrogated researchers' power to create concepts and discourses that limit alternatives (e.g. Bullock 2013, Llewellyn 2015, Valero 2004). For example, Llewellyn (2016) argues that MER's “preoccupation” with conceptual understanding (an important aspect of constructivist pedagogy) is limiting in as much as it is viewed as “inherently good and always the best case scenario” (p. 396). Thus, MER scholars not only create constructs, but ones that are held as part of an unequivocal moral good and as “common sense.”

This moral leadership is gained partially in relation to teachers. On the one hand, Llewellyn (2016) seems to hint at resistance from teachers when she states that MER is “preoccupied with exploring how to develop student teachers’ understanding of mathematics and convincing student teachers to teach mathematics for understanding” (p. 385). On the other hand, Pais (2012) argues that the equity goal of “mathematics for all” provides teachers with meaning for their work, and is an “ideological shield against the traumatic necessity of exclusion within current schooling” (Pais 2014, p. 1086). Thus, MER scholars may impose but also provide teachers with uplift and moral agendas.

Stanic and Kilpatrick (1992) note the relationship between reform and the growth and rejuvenation of MER, and argue that pre-*Standards* reforms “had their most significant effect on the university mathematics educators who were most involved in making decisions” (p. 415). However, for MER, none of these effects were negative, and negative consequences were overwhelmingly experienced by teachers and students. This ability to grow job prospects and rejuvenate the field but not share consequences is also a form of power. This is even the case for non-interventionist or revolutionary work making strong critiques of MER, math education, and education at large. Even in critiquing contradictions between theory and practice in MER we exhibit contradictions between theory and practice.

Thus, MER scholars themselves have already extensively noted contradictions between MER’s equity related theory and our practice in relation to marginalized students, elites, and our own power of representation. The persistence of these critiques points to that these contradictions are, to some extent, inherent in our collective positionality as MER scholars, rather than issues that can be fixed with better conceptualizations. This paper also gives particular attention to MER scholars’ relationship with teachers. While the MER scholar-teacher relationship is central to our work, it is generally backgrounded in the reviewed discussions of contradictions between theory and practice. In the next section, I provide more in-depth explanation of our situation as intellectuals in MER through Gramsci’s concepts.

III. Gramsci's Theory of Intellectuals and MER– Organic and Traditional Intellectuals

The social and economic positionality of intellectuals is central to Gramsci's revolutionary theory and strategy. This section elaborates on how Gramsci's theorizing about intellectuals applies to MER scholars. Gramsci argues that the state cannot be maintained through coercion alone, and also requires the consent of the masses to capitalist rule.⁷ Intellectuals work as the “dominant group's “deputies”” (p. 12), mediating between capitalists and the masses to gain the masses' consent to unequal social relations. This mediating role is that of intellectual and moral leadership, and intellectuals organize the masses and ideas, provide interpretations of society to guide action, and provide technical know-how.

While capitalists must function as intellectuals in order to maximize their profits, the demands of this project are so large that others must be recruited to carry it out. This includes those working for the state as academics, teachers, and artists in “civil society” and those working in “political society” or the coercive parts of the state (e.g. the military). It also includes managers, clerics, and technicians in private industry: everyone who provides intellectual and moral leadership.

While as “traditional intellectuals” – i.e. academics and teachers – we often incorrectly view ourselves as devoid of allegiances to elites and as independent of class location, “organic intellectuals” are bound to the specific interests of their class. Both MER scholars and mathematics teachers are traditional intellectuals in Gramsci's framework. However, Gramsci further discusses the need to analyze the relative organicity of groups of intellectuals, even when they are best categorized as traditional intellectuals. Gramsci states

the “organic” intellectuals which every new class creates alongside itself and elaborates in the course of its development, are for the most part “specializations” of partial aspects of

⁷ Gramsci presents the relationship between the State, civil society (i.e. the State's consent-building apparati) and political society (i.e. the State's apparati for force) in a multitude of ways. See Gramsci (1971, p. 208) for a discussion from Hoare and Smith.

the primitive activity of the social type which the new class has brought into prominence... However, every “essential” social group which emerges into history out of the preceding economic structure, and as an expression of a development of this structure, has found (at least in all of history up to the present) categories of intellectuals already in existence and which seemed indeed to represent an historical continuity uninterrupted even by the most complicated and radical changes in political and social forms (pp. 6-7).

With this in mind, it is worth considering the relationship between and relative organicity of MER and math teachers. Based on Gramsci’s explanation above, MER and NCTM might be understood as a “specialization” of aspects of math teaching and therefore “organic” to that field. A first aspect is the protection and maintenance of the field: Stanic & Kilpatrick (1992) note that NCTM was established in 1920 to protect the interests of math educators. School mathematics was threatened by decreasing enrollments and by progressive reformers who thought math was not useful. Additionally, MER and NCTM do research and policy work for the math education profession. MER and NCTM have also served as a venue for

contain[ing] within itself contradictory impulses coming from those who saw themselves as defenders of traditional mathematics, those who shared a love for mathematics but wanted to move the school curriculum forward, those who ultimately became part of the community because of the research they had done on “useful” mathematics, and teachers who had to deal with the rapidly changing population of students (Stanic & Kilpatrick, 1992, p. 411).

On the other hand, MER scholars can also be interpreted as not organic to the teaching profession, as MER has drawn from psychology, mathematics, philosophy, anthropology, and sociology and incorporated professors from these fields (Lerman 2000, p. 21). Many senior scholars have backgrounds in mathematics, psychology, anthropology, etc. instead of MER, and sometimes no experience as K-12 teachers. In other words, MER scholars are historically more tied to groups of intellectuals in universities than to the teaching profession. This is even the case as more scholars with teaching experience are brought into the field, as they generally become university employees and even professors, punctuated by extensive university training.

This relationship is obscured by MER having done exactly what it should have done and still should do, which is to increase the number of MER scholars who have teaching experience, as well as females and people of color who can represent their interests as subaltern persons. Older groups of MER scholars are fused with the more updated and practice-based concerns of ex-teachers, with feminized notions of pedagogy and empathy for the teacher, and with the needs of communities of color in math education. A more inclusive set of researchers and ideas is vital to the MER community and creates “shifting or broadening of the underpinning ideological orientations” (Ernest, 2009, p. 76). Gramsci notes that molecular changes do “in fact progressively modify the pre-existing composition of forces, and hence become the matrix of new changes” (p. 110).

At the same time, this process also serves to capture and partially depoliticize critique of MER. Gramsci characterizes “transformism” as the “molecular passage” from the led to the leading, in which intellectual groups are expanded through the absorption of the persons and ideas that are “the most highly endowed with energy and spirit of enterprise” (p. 80) from allied but also subaltern groups, “even of those which came from antagonistic groups and seemed irreconcilably hostile” (p. 59). Rather than providing alternatives to constructivist pedagogy, the perspectives of subaltern groups and ex-teachers are generally incorporated into the pre-existing framework of constructivist pedagogy, but with greater specificity about the prior knowledge and social goals that are relevant for subaltern students and for teacher’s practice-based concerns.⁸

Section IV considers MER scholars in the “global sense” of how we mediate broad class tensions between the working class and capitalists in the United States. Section V considers MER scholars and their local class relations with teachers and students.

⁸ See Maher (2001) for a very brief discussion on whether newer struggles in multicultural and Freirian pedagogies are “basically outgrowths and extensions of Dewey’s search for democracy and community or, on the other hand, that they represent a reformulation, even a rejection, of some key aspects of his thought” (p. 13).

IV. A Global View- MER in Relation to Managerial Strategies and Educationalization

The process by which capitalists gain and maintain the consent of the working class – via civil society – is called hegemony. Hegemony is two-way because it is the ideological and cultural leadership of the elite in elite interest, but also must be responsive to the led to gain their consent. Through this two-way project, “the ideological hegemony of the capitalist class is demonstrated by its capacity to present its particular interests as the interests of society as a whole” (Gramsci 1971, p. 159). Intellectuals play a dual role by educating the masses to take on the needs of capitalists as their own, and by enabling the capitalists and intellectuals to integrate the masses’ demands in a “molecular” way, mediated by the State.

In order to contextualize the local situation in which MER finds itself, I explain broader dynamics in which (a) managerial strategies evolve to secure surplus value for capitalists and (b) the education system takes on the responsibility for resolving inequities (educationalization). I also explain how, for each dynamic, constructivist pedagogy is a medium for the incorporation of criticism toward consent.

A. Shifting Forms of Labor and Managerial Strategies

While we do not typically speak of MER as a group of managerial experts, these two groups beg comparison for a few reasons. A first is that school trains students for work by mirroring the hierarchical relations, inequities, norms and values that students experience in their future jobs (Bowles and Gintis 1976).⁹ In this view, teachers operate as pseudo-managers over students.¹⁰ As an extension, MER scholars hand down expert ideas about pseudo-management like managerial experts hand down expert ideas to managers.

⁹ However, a number of scholars have critiqued Bowles & Gintis’s “correspondence theory” as overly deterministic, one-way, and not accounting for resistance by the subaltern and the ways in which they have adopted the institutions of civil society for their own purposes (e.g. Apple 1988, Gorelick 1977).

¹⁰ Although, see Baldino & Cabral (2013) for an argument that students and teachers quite literally do productive labor in classrooms.

The second reason that MER scholars and managerial experts beg comparison is because constructivist pedagogy is very similar to management trends to enhance the participation of workers developed since the 70s. Already in 1974, Braverman (1998) notes these trends but describes them as merely providing an *appearance* of replacing worker autonomy. This was an appeal to workers' criticism of prior Taylorist managerial strategies that had de-skilled them and left them with rote, compartmentalized jobs. These rote, compartmentalized jobs were created to secure capitalist control over the production process. In turn, increased control meant an increased ability to secure a surplus from workers. Braverman¹¹ describes workers as "systematically robbed of a craft heritage" (p. 6), as managerial experts reformulated their knowledge as a means to control them.

Boltanski & Chiapello (2005) provide an updated account of managerial strategies introduced by managerial experts since the 70s that respond to critiques of earlier Taylorist managerial strategies. They provide this account in order to explain how, since the 70s, workplace resistance has decreased despite income inequality having increased. New managerial strategies have leveraged worker critique to offer mitigated hierarchy and increased cooperation in work. Meanwhile, workers are provided less stability and pay accompanying these shifts. Despite reductions in pay and stability, Boltanski & Chiapello additionally note that these updated work values are often viewed as more equitable, as older managerial strategies are associated with older forms of inequality.

New managerial strategies, in their educational form as constructivist pedagogy, have effects for both students and teachers. For students, a constructivist training in valuing increased choices and collaboration, as well as mitigated teacher authority is a great training for embracing (and also resisting) these values in future work. However, the grading system, akin to the system of extracting surplus from workers, remains unchanged. Even as early as the twenties, Gramsci stated that "socialization and co-operation are being increased, without however touching (or at least not going beyond the regulation and control of) individual and group appropriation of profit" (p. 120).

¹¹ Akin to Bowles & Gintis, Braverman has been critiqued for giving an overly one-way account that misses worker resistance (Edwards, 1979) and how management creates (limited) choices for workers in order to secure their consent (Burawoy, 1979).

However, despite the lack of change in appropriating a profit, Gramsci notes that these shifts create “a period of expectation and hope...[that] reinforces the hegemonic system” (p. 120).

For teachers, constructivism provides opportunities for re-skilling. Teachers’ craft knowledge, expropriated through the history of the education sciences, is re-formulated as the special knowledge of MER scholars. That said, it is also reformulated in order to secure control; Braverman notes that managerial science is not “the “best way” to do work “in general” ... but an answer to the specific problem of how best to control alienated labor – that is to say, labor power that is bought and sold” (p. 90). Constructivism in MER is a preferred alternative to required proceduralized instruction for many teachers, and thus may secure consent to their labor process.

Ultimately, MER scholars mediate between the subaltern and capitalists by introducing managerial strategies like those provided by management experts. While newer, constructivist managerial strategies are responsive to workers’ criticism of Taylorism, they rejuvenate systems of managerial control in the benefit of capitalists. MER scholars embody a similar break between theory (in the interest of students and teachers) and practice (in the interest of capitalists). While Braverman shies away from making strong claims about whether “middle level” workers such as managerial and MER experts are in a distinct class from workers, we typically secure pay and benefits above those of managers (teachers) and workers (students) for this role.¹²

B. Educationalization

The term educationalization refers to how, in the United States and elsewhere, the education system has taken on the responsibility for mitigating political problems that are primarily systemic or structural (Bowles & Gintis 1976; Bridges 2008; Depaepe & Smeyers 2008; Kantor & Lowe 1995, 2013; Labaree 2005; Popkewitz 1984).¹³

¹² Braverman argues that “middle level” workers get paid part of the capitalist’s surplus to the extent that they are considered to contribute to it. See Gouldner (1979) for an argument that “middle level” workers constitute a new class.

¹³ Also see Gramsci (1971) who states “intellectual and moral reform has to be linked with a programme of economic reform – indeed the programme of economic reform is precisely the concrete form in which

“Educationalization” is usually used to refer specifically to *inappropriate* uses of the education system to deal with economic and political problems. This is because educationalization may distract from more direct or redistributive solutions that would likely be more difficult politically but also more effective. In distracting from redistributive solutions, educationalization works in elite interest. Educationalization in the U.S. has also been shaped by white resistance to redistributive solutions for racialized poverty. As I shall explain, MER and constructivism are part of the growth of educationalization.

Educationalization gained steam in the United States in the 1960s as the center of President Johnson’s Great Society antipoverty programs, largely intended to lessen racialized poverty in cities. On the one hand, Kantor & Lowe (1995) argue that educationalization emerged from a decline of organized labor as unions made agreements with corporations directly and thus reduced pressure on the state to intervene into the labor market. Education reform became the new means for poor and working class people to improve their prospects. On the other hand, the Civil Rights movement evolved to focus on equal educational opportunity, because some of the biggest wins had been both in court and about education. Thus, education reform also became a privileged vehicle for reducing racialized poverty. The federal government responded to this combination of shifting labor and racial politics by taking an increasing role in education policy, and educational interventions became tied up with notions of racial equality and alleviating poverty as an alternative to state intervention into the labor market.

However, even efforts at educationalization have been less direct and less material over time. The NAACP originally focused on school desegregation (yet only as part of a broader social and economic strategy), resulting in *Brown v. Board of Education* (1954) (Kantor & Lowe, 1995). While the Court failed to take affirmative action toward actually desegregating, education had become a national concern, facilitating its centrality in the anti-poverty reforms of the Great Society. Kantor & Lowe note that “what is most striking about the relationship between black insurgency and the Great Society’s

every intellectual and moral reform presents itself” (p.133). This also reveals tensions in the strategy of war of maneuver.

education policy is how the federal government appeared to legitimate black claims for equal education while avoiding the kinds of educational policies that many African Americans wanted most” (p. 8). In other words, it offered a partial concession. Title I of the Elementary and Secondary Education Act of 1965 was a move away from the magnitude of demands to desegregate, but did provide funding for African American students in urban schools, for which minority parents had to fight to make sure that they were actually targeted toward minority students.

The eighties represented the “pedagogicalization” of educationalization. Through reports such as *An Agenda for Action* (NCTM 1980), *A Nation at Risk* (National Commission on Excellence in Education 1983), and *Everybody Counts* (National Research Council 1989), links were drawn between national security and business, racialized poverty, and mathematics education. The NCTM *Standards* (1989) provided a pedagogical solution in linking constructivist pedagogy to both the needs of the nation and racialized poverty. While this call to increase the influence of constructivist pedagogy has had many benefits, it also represented the end of a longer and dramatic shift away from redistributive policies, even amongst policies that were already taking an educationalizing approach. With this limited strategy, it is difficult to represent inequity as a problem *for* certain students without representing it as a problem *of* particular students (Lubienski 2009). The onus is put on the subaltern student to resolve the inequities they experience on their own (albeit now with some increased responsibility on their teachers) through a competitive education system.

However, it must be re-iterated that hegemony is two-way. While educationalization may come at the price of economic stability for many, it is both responsive to the demand for greater equality and consonant with American values such as individualism, optimism and faith in expertise (Labaree 2008). Constructivist pedagogy has a number of qualities – for example an emphasis on community – that may resonate with females, people of color and poor and working class people, albeit without acknowledging differences between the interests of these subaltern groups. Mathematics has its own impressive assimilatory power as it is traditionally associated with ideologies

about abstraction, logic, rationality, mental discipline, and elitism, and many subaltern groups can legitimate their interests in relation to it in limited ways.¹⁴ Subaltern cultures are taken as generative contributions to the classroom. Finally, while through pedagogicalization equity is ultimately deemed the responsibility of the subaltern in math class, *Standards*-based reform also places responsibility on teachers to teach all of their students effectively. This addresses that teachers often neglect and discriminate against subaltern students; the kernel of a key student-teacher antagonism into which MER is able to inject the need for our own expertise.

Education professionals also have a large stake in educationalization and moreover in pedagogicalization. MER has had incredible growth since the Elementary and Secondary Education Act of 1965 and particularly since the *Standards*. Bridges (2008) notes that, while it is certainly in the interest of education scholars to participate in educationalization in the interest of jobs and grant money, we also want to contribute to “the wider social agenda of [our] age” (p. 461). There is also the fact that, even if pedagogicalization is an extremely indirect approach to mitigating inequality in the United States, constructivism is worthwhile as an intellectualizing alternative to Taylorist education. Finally, an indirect approach to mitigating inequality is better than none at all, except to the most extreme economic determinists. Bridges (2008) makes the distinction that it is not that educational initiatives never work, it is that they *tend* to end up reproducing rather than transforming the systems they set out to change (p. 468). However, as MER scholars we are again stuck in a contradiction between our theory and practice because we are largely left with the option to do nothing about equity, educationalize or write papers about how we shouldn’t educationalize.¹⁵

V. A Local View- The Intertanglement of MER, Teacher and Student Interest

¹⁴ See Popkewitz (1988, p. 287) on how “The U.S. civil rights movement of the 1960s which sought to eliminate racial discrimination and the feminist movement of the past decade impose pressures not only on who is taught mathematics, but also challenges some of the “rational” assumptions which underlie the selection of mathematics in school as valued knowledge within a hierarchy of human understanding” (p. 287).

¹⁵ See Swanson & Black (2017) for a discussion on the relationship between reformism and critique in MER.

In this section, I discuss more local class relations between MER scholars, math teachers, and students. These local relations are not isolated from the broader relations between the working class and capitalists discussed in the last section. They draw from these broader phenomena both materially and ideologically.

Following Braverman (1998), in the previous section I used the classical Marxist class relation between the working class and capitalists, while leaving the question of whether the “middle layers of employment” constitute a class open.¹⁶ Braverman explains that “classes, the class structure, the social structure as a whole, are not fixed entities but rather ongoing processes, rich in change, transition, variation, and incapable of being encapsulated in formulas, no matter how analytically proper such formulas may be” (p. 409). However, it *can* be asserted that class is fundamentally a social relation through which a group is able to secure a surplus from another. In this section, I do not make claims about what is and isn’t a class, but rather attend to the ways in which (a) MER may be seen as securing a surplus from teachers and (b) MER may be seen as obscuring class in relation to students.

A. MER Scholars and Teachers

Math teachers work in a nexus between organized labor and gendered¹⁷ intellectualism or professionalism. This gendered professionalism is gained in relation to students, over whom teachers have a pseudo-managerial and pseudo-motherly relationship. It is also derived from the university training provided by MER scholars by monopoly. Gramsci notes, “the intellectuals of the lower grades... normally tend to follow the university professors and great scholars, through spirit of caste” (p. 104).

¹⁶ On this difficulty, Gorelick (1977) writes, “the problem of the analysis of the class fragments other than the proletariat and the bourgeoisie is one of the most confounding in Marxist theory.”

¹⁷ Martin (2013) states that “For example, I would argue that the heightened demands on teachers in both of these efforts [Common Core and Conference Board of the Mathematical Sciences recommendations for teacher preparation] ... reflects heightened demands on the work done by working-class White women, given their demographic dominance in the teaching profession. This racialized and gendered character of mathematics education reform is obscured in the counternarratives that focus on market-driven ideologies that are claimed to drive such reforms.” (p. 328).

Relatedly, MER scholars offer math teachers the prestige of science, but this science is extracted from the teaching profession and re-branded as not the general knowledge of lay-persons or teachers. In this way, MER scholars are able to seize part of the intellectual work of math teachers. Teachers can continually be demonstrated as not possessing the type of understanding needed to be successful practitioners of constructivism as it is envisioned by MER scholars (e.g. Cohen 1990, Schoenfeld 1988), and there is always “the difficulty in translating a theory of learning into a theory or practice of teaching, a conversion that has always been difficult and less than satisfactory” (Richardson 2003, p. 1623). Again, this can be located in the universal, general, and abstract nature of scientific knowledge, and in the fact that constructivism is “strongly ideological” (p. 1624).¹⁸

There are additional reasons for the continual incompleteness of enacting constructivism, but that provide us with continual opportunities to do our work and secure our incomes. These include the continual difficulty of an educationalizing approach to mitigating racialized poverty, and that managerial strategies require constant reproduction and reconfiguration. Finally, it can also be related to the gendered nature of the teaching profession; teachers are largely female and moreover teaching is viewed as a feminized job in the U.S. In other words, the teacher is a female social type or category, even when particular teachers are male. Walkerdine (1989) argues that to be categorized as a female is to embody a perpetual state of lacking, independent of actual performance. That teachers are a female social type informs how constructivism puts them in relation to experts and students.

The feminized nature of teaching is built into constructivism in ways that help secure consent to the extraction of a surplus on the part of MER experts, who are gendered as male.¹⁹ This gendered relationship also recruits ideas about managerial

¹⁸ See also Gramsci (1995, p. 293) on science as an ideology, and “notwithstanding all the efforts of scientists, science never appears as a bare objective notion – it always appears in the trappings of an ideology: in concrete terms, science is the union of the objective fact with a hypothesis or system of hypothesis which go beyond the mere objective fact”. In this case we might take stereotyped social categories as ideologies on which science may be built.

¹⁹ While many MER scholars are now female, this was not always the case. This gendered teacher-researcher is also not specific to MER scholarship in particular, but is a part of education research at large.

approaches and educationalization. Maher (2001) writes about how, in education research, the archetypal villain is the racist white female teacher: “instrument and symbol of the old, repressive, authoritarian factory system of education” (p. 16). The heroes are archetypically anti-racist [although also generally white] male experts who inspire with brilliant pedagogy and buck the system. Constructivist pedagogy requires that teachers adopt a more appropriately facilitative, feminized role by reproducing the knowledge production of education experts and of the masculinized, active student who needs to avoid oppressive rote skill and rule following (Maher 2001, Walkerdine 1989).

These imaginaries also structure what is and isn't taught in schools of education. Borrowing from Miller (1996), Maher notes that classroom management is considered the a-scientific and moreover repressive practice of female teachers (and not education experts) that can be avoided through more intellectually engaging lessons. Maher notes that while teachers are “given responsibility for the child's growth, they are denied an active authority to bring that growth about” (p. 25). Strangely, the fact that teachers have a pseudo-managerial relation to students is also obscured in imaginaries that appeal to Taylorist management, because traditional management (or managerial tendencies in general) becomes individualized as being in the nature of a particular (feminized) teacher.

Professionalism gained through MER scholars also has an illusory quality in which class antagonisms between MER scholars and math teachers are obscured. Stigler & Hiebert (2009) relates the lowered status of teachers to educational experts' annexation of aspects of teachers' work via reforms, originating in the social efficiency movement of the 20s (p. 173). Angus (2001) describes how control over teacher certification and training was appropriated by university schools of education, albeit not without counter-efforts on the part of organized teachers. Gramsci (1971) also notes that reforms correspond to a reduction of teachers' status.²⁰ Stigler & Hiebert argue that this rift between researchers and teachers has grown since, explaining that

Education scholars have been predominantly male until recently. That said, the discussion here is about gendered social categories and relationships rather than male to female ratios in MER and teaching.

²⁰ Gramsci (1971) states that “With the new curricula, which coincide with a general lowering of the level of the teaching profession, there will no longer be any “baggage” to put in order.” (p. 36)

Because of the high status usually assigned to acquiring knowledge and the low status assigned to applying it, this distinction strongly reinforces the low professional status of teachers. And this is a distinction created and sustained within the educational community... By hanging on to the research/teaching distinction, the educational world has robbed teachers of the opportunity to participate in the development of new knowledge about teaching (p. 174).

Not surprisingly, “the U.S. educational establishment has been unable to envision a system that gives teachers the freedom and the responsibility to acquire and apply the knowledge needed to improve teaching in the long run” (Stigler & Hiebert 2009, p. 174), which would require “material” boosts to teachers’ situation. For example, Stigler & Hiebert note that teaching will never be a profession without in-house development of standard practice, requiring “two hours per week of uninterrupted study” (p. 160).²¹ While it is hard to make strong claims about the exact nature of the relation between MER scholars and teachers and whether they are in distinct classes or not, we can conclude that MER scholars are able to extract a surplus from math teachers in this way; by extracting a highly monetarily-valued (intellectual) portion of their work.

The position of MER scholars is contingent on the view that “good teaching is an individual trait. Change the teacher, and the quality of teaching changes” (Stigler & Hiebert 2009, p. 175).²² This view of teachers as in need of change from outside is conveyed by literature on “teacher learning” which does not examine the expert knowledge to be learned, consider how it came to be a matter of fact improvement of teacher practice, or how it is embedded in class relations. Teachers are deemed as needing to accept change from experts in order to avoid harming their students.²³ Lubienski (2009) notes that

²¹ Stigler & Hiebert provide the example of the case of Baltimore on pp. 177-178, in which teachers were successfully able to gain more time within the workday to meet about practice, but ultimately administration replaced this with presentations from educational experts promoting progressive educational practice. In other words, work was produced for experts at the cost of teachers’ self-development.

²² Gramsci states of constructivist reformers, “It was right to struggle against the old school, but reforming it was not so simple as it seemed. The problem was not one of model curricula but of men, and just of the men who are actually teachers themselves but of the entire social complex which they express” (p. 36).

²³ Gramsci argues that “in order to analyse the socio political function of the intellectuals, it is necessary to recall and examine their psychological attitude towards the fundamental classes which they put into contact

the struggles encountered by teachers attempting to implement the Standards with diverse students tend to be attributed to teachers' low expectations of students, lack of pedagogical skill or mathematical knowledge, or poor administrative support (p. 109).

Despite its illusory quality, the professionalization of math teachers via MER scholars creates a tension. If teachers identify professionally as teachers, they are more likely to organize as unionized workers apart from subject discipline. In contrast, if teachers identify professionally according to discipline, they are more likely to see themselves as allied with MER in universities. Teachers become separated by professional interests in their subject discipline rather than unified in their rights as workers.

However, it is again the case that hegemony is two-way. Math teachers may consent to MER scholars' extraction of surplus because of the ways that constructivism appeals to a common sense about science, gender, managerial strategies, and educationalization, even when these do not portray teachers in a positive light. Akin to MER scholars, math teachers often enter the profession because they want to make math more exciting, be effective teachers, and make positive changes in the lives of students and particularly subaltern students. At the same time, they may also be acutely aware of their difficulties in achieving these goals, and MER may offer welcome and scientifically-sanctioned advice. However, based on this relationship of extracting a surplus, MER scholars engage in a contradiction between theory and practice when positioning themselves as teacher advocates.

B. MER Scholars and Students

In relation to students, the primary contradictions between MER theory and practice are due to educationalization and the ways in which constructivism operates as a managerial strategy, as already discussed. Here I consider some additional ways in which constructivist pedagogy may obscure class to subaltern students and teachers who work with them. These include the risk of neglecting skills in some instantiations of

in the various fields. Do they have a "paternalistic" attitude towards the instrumental classes? Or do they think they are an organic expression of them?" (p. 97)

constructivism, that constructivism obscures privilege, that students may prefer traditional instruction for a variety reasons, and that the pseudo-managerial relationship between students and teachers is obscured.

Akin to MER scholars, in thinking about how to form organic intellectuals from the working class, Gramsci also dealt with tensions between the need to entrain subaltern students into critical, intellectual dispositions and into the skills to back them up. In MER, the analogous tension is between providing subaltern students with a constructivist training toward increased democratic participation, and getting students the grades and certifications that they need to be competitive at school and in the job market.

Part of this is because, while constructivism shifts classroom interactions, it does not shift the use of math in grades, credentialing and standardized testing. With these systems retained, it is precisely the same pedagogy that constructivist educators and Gramsci argue that subaltern students need to enhance their democratic and even radical agency that Walkerdine (1989) argues potentially gives middle class, white and male students a leg-up in the classroom.

Gramsci's writings on education bare strong similarities to the writings of Delpit (1986), who argues that in attempts to teach for democracy or equity through constructivist pedagogy, many teachers (particular white teachers) fail to teach the skills that students of color and/or poor and working class students need for economic access. Gramsci echoes these concerns, writing that, at the very least, traditional pedagogues provided students with clear information, whereas constructivists may fail to do this.²⁴ Namely, there is a threat that

²⁴ See Gramsci (1971, pp. 35-42) on these issues. Gramsci states "In reality a mediocre teacher may manage to see to it that his pupils become more *informed*, although he will not succeed in making them better education; he can devote a scrupulous and bureaucratic conscientiousness to the mechanical part of teaching – and the pupil, if he has an active intelligence, will give an order of his own, with the aid of his social background, to the "baggage" he accumulates. With the new curricula, which coincide with a general lowering of the level of the teaching profession, there will no longer be any "baggage" to put in order. The new curricula should have abolished examinations entirely; for to take an examination now must be fearfully more chancy than before. A date is always a date, whoever the examiner is, and a definition is always a definition. But an aesthetic judgement or a philosophical analysis?" (p. 36).

We will have rhetorical schools, quite unserious, because the material solidity of what is “certain” will be missing, and what is “true” will be a truth only of words: that is to say, precisely, rhetoric (pp. 35-36).

At the same time, neither Gramsci nor Delpit should be read as a traditional educator, and rather as warning about excesses of constructivist pedagogy, such as an extreme hands-off method or the stigmatization of any practice or attempt at teaching skills. Delpit identifies as a progressive (i.e. constructivist) educator, and Gramsci writes that

A school which does not mortgage the child’s future, a school that does not force the child’s will, his intelligence and growing awareness to run along the tracks to a predetermined station. A school of freedom and free initiative, not a school of slavery and mechanical precision. The children of proletariats too should have all possibilities open to them; they should be able to develop their own individuality in the optimal way, and hence in the most productive way for both themselves and society (as cited in Giroux, 1999, p. 10).²⁵

Ultimately, Gramsci argued that constructivist reforms needed to place “limits on libertarian [i.e. Rousseauian educational] ideologies” (p. 32) by putting them into a “rational phase” (p. 33). Arguably, MER has accomplished this via the standardization of constructivism.

Gramsci hints that constructivism obscures privilege in his discussion of how, to the subaltern student,²⁶ the child of intellectual parents appears smart. The children of intellectuals have increased access to both traditional skills and constructivist modes of communicating (see also Delpit 2006). Via constructivism, it is unimaginable to point

²⁵ See Giroux (1999) also for a discussion on conservative co-options of Gramsci’s work to advocate for traditional instruction, but without the Marxist political basis.

²⁶ See p. 31 and pp. 40-41 “Undoubtedly the child of a traditionally intellectual family acquires this psycho-physical adaptation more easily. Before he ever enters the class-room he has numerous advantages over his comrades, and is already in possession of attitudes learnt from his family environment: he concentrates more easily, since he is used to “sitting still”, etc. ... This is why many people think that the difficulty of study conceals some “trick” which handicaps them – that is, when they do not simply believe that they are stupid by nature. They see the “gentleman” – and for many, especially in the country, “gentleman” means intellectual – complete, speedily and with apparent ease, work which costs their sons tears and blood, and they think there is a “trick”.

this out, or for a teacher to say “Yes, Bobby got that question correct because his dad is a lawyer”. We expand the notion of “smart” instead of interrogating what “smart” conceals in the first place. Additionally, the liberal mode of speaking in MER discourages relating subaltern students’ performances to their guardians’ class. While this is required to avoid stereotyping students, it also obscures.

Additionally, constructivism holds that rote procedure and direct instruction are oppressive to students. However, many math teachers (and even some MER scholars) will recount the resistance students have mounted against attempts at reform pedagogy. To some degree, teachers free students from an imaginary oppression via constructivism. Constructivism also facilitates the view that teaching can be “good for equity” instead of the view that teaching subaltern students to the best of ones’ abilities is what one needs to do to be competent at teaching. Teachers are reformulated as caring guides instead of pseudo-managers, without changing their role in assigning grades (see Pais 2014).

However, constructivism can also have a strong appeal to students. The notions of deeper understanding, the activity and autonomy of the learner, and group work all have experiential benefits and novelty. Subaltern students may gain exposure to verbal skills that are the terrain of intellectuals and professionals, and may find notions of equity, inclusivity and political agency appealing. Gramsci adds that constructivist reforms

could not fail to be effective, both among the lay [due to the antiauthoritarian nature], to whom it gave a personality of their own within the school, and among the liberalizing and anti-Jesuitical clergy. (p. 103)

VI. Conclusion

This paper considered how contradictions between MER theory and practice are grounded in class relations. This included ‘broad scale’ relations between workers and capitalists, such as shifts in managerial strategies and educationalization, and the ‘local scale’ relations between MER scholars, teachers and students. MER scholars are able to extract a surplus from the teaching profession through research, certification and training. They also obscure the role of class for students. Across the board, constructivism plays a role in securing consent by offering partial concessions to critique.

As intellectuals, our interests are also tied up with elite interests, whether this is obscured or not. This relates to our power to do research and to create concepts. Ultimately, the sensation that we “challenge common sense” through our work is true, but it is also true that in so doing, we construct new common sense with strong assimilatory and moral power. Thus, while constructivism offers an important alternative to traditional methods and moreover conservative education, we also need to be willing to submit it to scrutiny in terms of its tenets but moreover for its political and economic functions.

Gramsci challenged intellectuals to merge their theory and practice, and for MER scholars, it is therefore important to ground our practice in an understanding that we are working as traditional intellectuals for the State and additionally in a quasi-managerial relationship with teachers. Our capacities to work toward equity for subaltern students and to truly empower teachers are thus limited. That said, Gramsci’s strategy for communist revolution was to first take over civil society to develop communist hegemony prior to attempts to take over the State. Unfortunately, Gramsci did not leave us many hints on telling the difference between shifts in civil society that assist capitalists versus those that don’t (Callinicos 2010).

While I would argue the utmost importance of integrating critical theory and the needs of the subaltern into our work, it may result in better science more often than it results in a mitigation of inequity. The claim that our ability to mitigate inequality is limited is not the same as arguing that our work is hopeless. Indeed, critiques that are wholly pessimistic about attempts to improve math education can both reinforce the status quo (Swanson & Black 2017) and perpetuate a disregard for the class relations we are in.

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