Taylorism and the logic of learning outcomes

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This essay examines the shared philosophical foundations of Fredrick W. Taylor's scientific management principles and the contemporary learning outcomes movement (LOM). It analyses the shared philosophical ground between the focal point of Taylor's system—'the task'—and the conceptualization and deployment of 'learning outcomes' in American post-secondary systems. It further critiques Taylor's principles and the logic of outcomes from the standpoint of John Dewey's educational philosophy. This essay will show how the contemporary LOM is not only an extension of Taylorism, but also yields the very real possibility of restricting the creative capacities and unique potentials of students.

Keywords: educational assessment; outcomes of education; post-secondary education; John Dewey

Over the last 20 years, the use of definable and measurable learning outcomes has increasingly become a requirement for justifying curricular and pedagogical practices. To suggest the opposite—that the systematic use of learning outcomes is not only unnecessary but actually may inhibit or disrupt deep learning—would be to appear on the wrong side of logic: as anti-transparency, anti-science and anti-growth. It would also appear to argue in favour of a relativized form of education grounded in little more than the whims and desires of non-specialists.

In a recent article in this journal, Au (2011) offered a critical analysis of the historical relationship between Fredrick W. Taylor's scientific management principles and the American public school system. In particular, he examined the policies, practices and aims of education, showing how much of the guiding rationale behind contemporary schooling can be traced directly to Taylor's ideas. Ultimately, Au (2011) argued that 'public school teachers in the US are teaching under what might be considered the "New Taylorism", where their labour is controlled vis-à-vis high-stakes testing and pre-packaged, corporate curricula aimed specifically at teaching to the tests' (p. 25). This essay is an attempt to add to and expand the argument that Taylor's principles are embedded in the policies and practices of contemporary schooling in the American public school system.[1] Specifically, I will show how the LOM, in its contemporary conceptualization and deployment, shares the philosophical infrastructure of Taylor's principles of scientific management. Drawing on the philosophy of John Dewey, I will also critique this position as being

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antithetical to the development of deep learning and democratic forms of education.

This essay will make five primary moves. First, I will draw a connection between Taylor's reorganization of management practices around what he calls the 'task', and the reformation of educational practice around the 'learning outcome', Second, I will examine the nature of ends or goals in the course of inquiry, showing how Taylor's view and the LOM are built on a fixed and reified view of ends. This will be compared against Dewey's understanding of a flexible and emergent end-in-view and its centrality to any authentic process of inquiry. Third, I will argue that while the LOM is most often framed as a way to standardize the ends rather than means of learning, such a goal is philosophically untenable and very often yields a normative view of educational means in lived practice.[2] Fourth, I will show how the codification of means and ends, present in both Taylor's principles and the LOM, yields a dehumanization of subjects in the system. This will be compared against Dewey's concern for the inherent agency and dignity of students. Finally, I will show how Taylor's understanding of industrial processes, on one hand, and the educational imaginary of the LOM, on the other, are grounded in a teleological view of institutions and societies that, from a Deweyan perspective, is anti-democratic.

Overall, the essay will show how the American post-secondary system, as increasingly defined and determined by the use of learning outcomes, is not only an extension of Taylorism, but also yields the very real possibility of restricting the creative capacities and unique potentials of students.

Tasks and outcomes as the ground of practice

Fredrick Taylor, an industrial engineer, was faced with a problem similar to one which educational administrators and legislators face today: he wanted to leverage the tools and methods of modern science to more efficiently manage a system of production. In Taylor's case this was the production of products; in the educational administrator's case this is the production of persons. When *The Principles of Scientific Management* (1911) was released, Taylor's ideas were immediately hailed as a revolution.

Taylor's main idea was the reorganization of industrial systems around quantifiable and measurable goals. He (1911/1998) labelled the traditional method of management the 'initiative and incentive model' (p. 25). He believed this method, which generally rewarded employees based on completed work, was deeply problematic because it failed to maximize production. Taylor's (1911/1998) solution to the problem was to reorganize the system of apprenticeship and localized knowledge around what he called 'the task' (p. 29). Taylor believed that 'the task' is that thing a worker must know and be able to do in order to perform their role productively and correctly. Taken collectively, a system of tasks worked in synchronization to support a process of production and reach a definable goal. Taylor (1911/1998) describes 'the task' as the following:

> Perhaps the most prominent single element in modern scientific manage-
> ment is the task idea. The work of every workman is fully planned out by
> the management … in advance … This task specifies not only what is to be
> done but how it is to be done and the exact time allowed for doing it. And
> whenever the workman succeeds in doing his task right, and within the time
> limit specified, he [is rewarded for his effort]. … Scientific management
> consists very largely in preparing for and carrying out these tasks. (p. 29)

Taylor's goal was to design a system which scientifically determined not
only which tasks were correct for a particular job or industry, but also the
best methods and approaches to accomplish those tasks.

Like Taylor's reconstruction of industrial organizations around the
task, the landscape of post-secondary education in the American public
school system is being reconstructed around the learning outcome. In
2004, for example, the Southern Association of Colleges and Schools
(SACS) made a major change to its criteria for post-secondary accredita-
tion. While SACS (1984/1997) previously required all institutions to
engage in ongoing planning and improvement, it 'advocate[d] no single
interpretation of the concept of institutional effectiveness' (p. 17). In
2004, SACS (2001/2012) reversed this position and created a restrictive
definitive of effectiveness, requiring that each institution 'identifies
expected outcomes, assesses the extent to which it achieves these out-
comes, and provides evidence of improvement based on analysis of the
results …' (p. 27). In particular, it requires that all educational pro-
grammes at a university be measured against a codified set of student
learning outcomes (p. 27). The expansion of student learning outcomes
tied to quantitative assessment metrics in American post-secondary educa-
tion is being supported by significant corporate and legislative interests
such as the Gates Foundation (see Ashburn, 2010), the Educational
Testing Service (see Dwyer, Millett, & Payne, 2006) and the Obama
administration (see Nelson, 2012, 2013).

While the systematic use of learning outcomes is a contemporary
phenomenon, the philosophical groundwork for their construction and
adoption was established in the first half of twentieth century as part of
the social efficiency movement, which intended to use Fredrick Taylor's
principles as a foundation for the American education system (Shepard,
2000, p. 4). Taylor's appeal was in offering seemingly scientific evidence
that a human system could provide that which modern technocratic sensi-
bility demands: certainty, repeatability and predictability.

E.L. Thorndike's work, in particular, played a central role in moving
Taylor's ideas into educational theory and practice (Garrison, 1990,
p. 393). Like Taylor, Thorndike (1903/1910) argued there are 'scales for
every thing in human nature' (p. 4) Like Taylor, Thorndike (1912/1920)
saw his work as establishing scientific methods to 'measure such educa-
tional forces as the teacher's interest in his work, or the ingenuity of his
questions, and such educational products as knowledge …' (p. 212). Also
like Taylor, Thorndike believed that learning is the accumulation of stim-
ulus-response associations. While Thorndike is no longer a visible pres-
ence in educational theory, his ideas deeply influenced contemporary
beliefs about the nature of evidence, the principles of fairness and the

shape and trajectory of educational research in the twentieth century (see Baez & Boyles, 2009; Lagemann, 1997; Shepard, 2000).

It is clear that the contemporary LOM is grounded in cognitive (particularly first-generation cognitivist) rather than behavioural theories of learning such as Thorndike's. Despite this fact, Thorndike's behaviourism and the contemporary LOM share several core philosophical assumptions.[3] First, both are grounded in a dualistic ontology that separates both body from mind, and learner (self) from environment (world). Second, both tend towards eliminative reductionism. On one hand, while behaviourists correctly eliminate the psychic mind, they often employ the stimulus-response model so far as to remove the mental altogether. On the other hand, cognitivists often concentrate so singularly on meaning they ignore its embodied matrix altogether. Here, the main difference between the two positions is where learning resides (i.e. for behaviourists, it resides in the body; for cognitivists, it resides in the mind). Third, they both disregard the role of emotions as a significant factor in learning. Fourth, they are typically epistemological foundationalists who hold that knowledge is a thing-in-itself and is ontologically separate from the learner.[4]

While the typologies of and approaches to learning outcomes differ widely, they are all rooted in and emerge from the same family of psychological theories that share these philosophical foundations (see Lim, Yoon, Son, & Park, 2007).[5] For the purpose of this essay, therefore, I will draw on those shared foundations to define learning outcomes as skills, knowledges or abilities that are defined and articulated *prior to and apart from* any actual instance of learning and *against which* a learning process is ultimately evaluated. In this way, learning outcomes are teleological rather than emergent. They also may be deployed in multiple spheres of the system, including individual teaching events, modules or courses or whole degree programs (Hussey & Smith, 2008, p. 107).

At the same time that Taylor's ideas became infused inside educational theory and practice via the social efficiency movement and Thorndike's research, they also laid the foundation for modern organizational theory, becoming the ground of what today is known as total quality management (TQM) (see Boje & Winsor, 1993; Kujala & Lillrank, 2004). TQM is a method of management that organizes a system around the construction of fixed organizational objectives, and which includes an elaborate mechanism of management and accountability for 'continuous improvement' in relationship to those objectives (Porter & Parker, 1993, p. 14).

In American post-secondary schooling systems, TQM is quickly becoming the guiding approach to administrative management (see Cruickshank, 2003; Venkatraman, 2007). Its rapid adoption, particularly since the 1990s, has occurred concurrently with the systematic deployment of learning outcomes in American higher education. This should come as no surprise, as the LOM and TQM share the same legacy, outlook and assumptions. This is why both the LOM and TQM have been at the centre of calls for the improvement of 'quality' in education (see Besley & Peters, 2009). It is my contention, therefore, that while they are often touted as a mechanism to create greater equity and equality in education, learning outcomes should properly be understood as the symbolic heart of neoliberal corporate reform

efforts. Learning outcomes are the bearings on which the flywheel of the reform movement spins.

The nature of educational ends

In the previous section, I made the case that Taylor's reorganization of management practices around the 'task' bears a strong family resemblance to the reformation of educational practices around the 'learning outcome'. In this section, I will examine the nature of ends or goals in both Taylor's view and in the LOM, showing how both are built on a fixed or reified view of ends. This will be compared against Dewey's understanding of a flexible and emergent end-in-view and its centrality to any authentic process of inquiry.

Both Taylor's view of tasks and the LOM is built on a substance realist metaphysics and a correspondence theory of truth that holds that knowing is a causal, cognitive act, taking the form of a viewer who has the ability to 'see' a mind-independent object (see Garrison, 1994; Stoller, 2014). Here, knowledge is imagined as antecedently embedded in the natural structure of the cosmos and exists as a thing in-itself. Dewey called this position the *spectator theory of knowing*. He believed it characterized all major epistemologies in the West and was one of its most pernicious problems (Dewey, 1929/1984, pp. 3–20). The spectator theory of knowing gives way to the belief that ends (e.g. knowns, facts, skills, etc. …) can be fixed for learners prior to and apart from an experienced process of inquiry. This further means that learning, viewed as a generic, causal process, may be applied unilaterally and irrespective of the student or their unique context.[6]

Taylor's principles begin with the assumption that in order for an industrial system to function well there must be rigid, definable and quantifiable ends, against which individual and collective performance should be measured. Those ends, which Taylor called tasks, were to be 'fully planned out by the management' in advance and given to the workers as the objective of their work activities without respect to the needs, skills or talents of any particular worker (Taylor, 1911/1998, p. 29). Taylor's system was deeply teleological at the level of the system and the individual, operating under the assumption that the proper approach was to make workers conform to pre-determined, narrowly defined ends.

Like Taylor's tasks, learning outcomes are believed to be the final product of a learning process taking place within a student (see Gagné, 1974; Ing, 1978). These learning products (e.g. knowledges, skills or attitudes) are imagined as things-in-themselves, separate from the knower's experience, allowing them to be articulated and codified prior to and apart from any experienced process inquiry. As Gagné, Briggs, and Wager (1992) argue, 'the best way to design instruction is to work backwards from its expected outcomes' (p. 39).

It is clear that in many instances, the LOM is not as explicitly prescriptive as Taylor's system and, in fact, is often self-aware of the

potentially harmful effects of such a normative environment. For example, Biggs ([2003](#)) argues, 'making the objectives up-front and salient is not to exclude other desirable but unforeseen and unforeseeable outcomes. … Thus, being clear about what we do want in no way pre-empts us from welcoming unexpected outcomes from our students' learning' (p. 44). Yet, at the same time, Biggs ([2003](#)) argues that the goal of LOM is to codify 'levels of understanding in advance and embody them in the objectives' (p. 45). Those pre-determined objectives also become the singular method by which students are evaluated and rewarded (pp. 47–55). The LOM, then, while willing to acknowledge peripheral learning will occur outside of pre-determined ends, does not account for or incentivize anything that falls outside of the prescribed norm.

From a Deweyan perspective, articulating fixed ends prior to an actual experience of inquiry is antithetical to and actually inhibits a process of deep learning. This is because ends, for Dewey, are experimental and emerge from within the context of a course of inquiry. They are emergent rather than teleological. This does not mean that Dewey (1916/[1980](#)) was opposed to aims or goals in education (p. 109). Instead, Dewey was concerned with how ends originate, who articulates them, and how they are deployed within the context of a process of inquiry and learning.[7]

For Dewey, there are three characteristics of valuable ends in education, against which both Taylor's tasks and the LOM fail. The first is that ends must begin from within the context of a learning situation that includes the background experience, talents and interests of the student (Dewey, 1916/[1980](#), p. 111). The second is that ends must be flexible and fluid: they must be capable of revision, alteration or outright rejection if they do not support the unique learning process emerging in the classroom (Dewey, 1916/[1980](#), p. 111). It is for this reason, thirdly, that Dewey referred to all educational ends as 'ends in view'—a phrase which qualifies any goal as tentative and, more importantly, ensures that ends are continuously, fluidly and directly tied to an ongoing process of learning in a student's experience (Dewey, 1916/[1980](#), p. 112). For Dewey (1916/[1980](#)), 'ends which issue from some outside source … limit intelligence because, given ready-made, they must be imposed by some external authority to intelligence' (p. 111). On this point, Dewey could not have been clearer: the codification of learning goals by an outside expert cut off a student from their own learning process and, therefore, forces them into low-grade forms of thinking. This is precisely because *the cultivation and revision of ends, itself, is a central part of the learning process*.

Dewey (1938/[1988a](#)) writes that when '*undergoing* inquiry, the material has a different logical import from that which it has as the *outcome* of inquiry' (p. 122, emphasis in original). A forecasted idea becomes a settled outcome for a student only after it has undergone a transformation tied to a unique process of inquiry. Outcomes of learning are the same as the outcomes of inquiry; therefore, they must emerge from an experimental process that cannot be defined or predicted in its inchoate stage.

The nature of educational means

In previous section, I argued that Taylor's principles and the LOM are built on a fixed and reified view of ends that limits thinking and intelligence. In this section, I will argue that while learning outcomes are often framed as a way to standardize the goals, rather than means, of learning, such a position is philosophically untenable and very often yields a normative view of educational means in lived practice.

Taylor believed that science was capable not only of locating the correct ends for a process of production, but also that it would be able to secure the best processes or means of production. Taylor's model was intended not simply to regulate worker outputs, but to control the very processes, behaviours and actions of employees. In this system, management would create goals, define methods and generate rubrics against which labour was evaluated and rewarded for conformity (Taylor, 1911/1998, p. 105). Taylor (1911/1998) believed—uncritically and unilaterally—that under such a system the very messy process of organizing humans would be managed with all the precision and scalability of an industrial machine (p. 106). The result was (and remains) that such a system stripped labourers of the possibility of any kind of intelligent reflection on or creative action within the flow of their work (see Head, 2014). Workers were simply made to mechanically carry out tasks that had been laid out in advance.

The LOM most often imagines itself as fixing the ends, rather than the means, of learning. Yet, this belief is not borne out in the way outcomes are actually deployed in American post-secondary schooling systems. Take, for example, the Liberal Education and America's Promise (LEAP) outcomes created by the American Association of Colleges & Universities (AAC&U). The AAC&U is a member-based nonprofit which defines itself as 'the leading national association concerned with the quality of student learning in college' (see AAC&U, 2014a). One of the primary goals of the AAC&U is the identification and articulation of a set of normative learning outcomes (the 'Essential Learning Outcomes') that it believes all American college students must know or be able to do.

To clarify and support its outcomes, the AAC&U has established a set of 'VALUE rubrics' designed to articulate the phases or steps of achieving each of its targets (see AAC&U, 2014b). Rubrics of this sort are not limited to AAC&U, but have become a standard part of the adoption of learning outcomes (Popham, 1997, p. 72). Rubrics are designed to support outcomes by articulating the normative criteria for the 'correct' mode of constructing or approaching a given learning task, as well as to illuminate those approaches that will be rewarded in the context of the grading process (Andrade, 2005, p. 27). The rubric for AAC&U's 'Inquiry and Analysis' learning outcome, for example, parses the deeply messy and unpredictable phenomenon of inquiry into six tidy, definable and linear steps: topic selection, use of existing knowledge, design process, analysis, conclusions, limitations and implications (AAC&U, 2014c). Each of these categories is tied to a definition of correct action, against which a learner's behaviour is measured.

There are several immediate problems with this rubric. The first is it, like all rubrics, is necessarily reductionist and narrows the possibilities of creative expression on the part of students (Mabry, 1999, p. 678). Some of the vital concepts missing from the AAC&U rubric include: failure, passion, accident, morality, intuition, creativity, meaning, standpoint, oppression, serendipity, need, purpose, divergence and community. The second is that it assumes as a matter of course that the actual, embodied student who is learning how to inquire bears no relationship to or effect on the a priori concept. Lastly, the rubric further rejects logics that fall outside of modern technocratic forms of rationality. For example, this might include artistic inquiry, which is an emergent and intuitive process of inquiry, rather than strictly methodological or theoretical.

The AAC&U has also recently begun a new, expanded phase of measurement and accountability for this project in which it intends 'to lay a foundation for *using VALUE rubrics to assess student authentic work*' (emphasis added) (AAC&U, 2014b). Here, AAC&U is quite explicit in its claim that the 'quality' of American post-secondary education is in how well students conform to its codified norm in both product *and process*.

The AAC&U's long-term strategy, supported in large part by a grant from the Bill and Melinda Gates Foundation (AAC&U, 2014b), is to have all campuses in the United States adopt its model (including learning outcomes, rubrics and assessment strategies) which will be fed back into a system of public reporting on how well students at each institution meet the essential learning outcomes (American Federation of Teachers, 2015). In order for this to occur, it has created a public action campaign which includes more than 300 campuses as part of the 'LEAP Campus Action Network' intended to promote the LEAP outcomes, as well as help campuses 'improve their efforts to ensure all students achieve essential liberal education outcomes, and shines a spotlight on educational practices that work' (AAC&U, 2014d).

In opposition to Taylor and the LOM, Dewey (1939/1988) argued that imagining means and ends could be separated was philosophically untenable (pp. 226–236). To the contrary, means and ends emerge and are reconstructed simultaneously through a unified process of inquiry: they are unpredictable, emergent and context dependent. They are also inseparable in the course of lived experience.

For Dewey, it is only when means/ends are fluid and emerge transactionally through inquiry that actual intelligence can be developed (see Boisvert, 1998, pp. 29–48). This is because, for Dewey (1929/1984), intelligence is fundamentally associated with judgement: '*with selection and arrangement of means* to effect consequences and with choice of what we take as our ends' (p. 170, emphasis added). Further, and importantly, he argues that 'a man [*sic*] is intelligent not in virtue of having reason which grasps first and indemonstrable truths about fixed principles … *but in virtue of his [sic] capacity to estimate the possibilities of a situation and to act in accordance with his estimate*' (Dewey, 1929/1984, p. 170, emphasis added). The completion of a successful arc of inquiry (and, therefore, the cultivation of intelligence) is dependent upon the ability of the inquirer to

deploy habits of reflective action: to improvise, redirect and reconstruct means/ends within a process of creative inquiry.

Conversely, the goal of education has nothing to do with codifying means/ends because the process of learning and growth is not a definable, cumulative and necessarily progressive process. This does not mean that educators cannot witness growth in education, but that growth is tied to a continual hermeneutic reconstruction where means/ends are phases of an undertaken experience of inquiry (see McEwan, 2000). Further, those means/ends can only be identified as such after an experienced process of inquiry has concluded.

The agency of learners

In the previous section, I showed how, in practice, both Taylor's principles and the LOM rely on the standardization of educational means to support a system of fixed ends. I also argued from a Deweyan perspective why such a situation is untenable and results in limited learning and the restriction of intelligent thought. In this section, I will show how Taylor's principles and the LOM are connected to a dehumanization of subjects in the system. This will be compared against Dewey's argument in favour of the inherent agency and dignity of learners.

Taylor's enthusiasm for a science of management was supported by and interrelated with the deficit perspective he held of individual workers. Taylor (1911/1998) believed that labourers were naturally unmotivated and, if left to their own accord, would find ways to do minimal work for maximum pay (pp. 8–9). Additionally, Taylor (1911/1998) believed workmen were incapable of critical, imaginative and reflective thought (p. 52). Specifically, Taylor (1911/1998) wrote that 'the man suited to [manual labour] is too stupid properly to train himself' (p. 52). Taylor believed his view of organizational management was benevolent because it 'understood that the removal of these men from [their former roles], for which they were unfit, was really a kindness to themselves, because it was the first step toward finding them work for which they were peculiarly fitted …' (p. 52). In doing so, Taylor assumed a clear and definable caste system that was tied to a narrow view of intelligence and capacity.

Taylor's system also required an elaborate and broad-reaching system of management and accountability because it dissolved trust at all levels. Near the top of the system were scientist–managers (i.e. the expert knowers) responsible for the development of tasks. Those tasks were deployed through a system of functionaries holding divergent roles (e.g. functional foremen, inspector, speed boss, gang boss and disciplinarian) (Taylor, 1911/1998, pp. 106–108).

As I have previously shown, TQM and the LOM have emerged continuously on American college campuses over the last 30 years. This reformation of the system is tied to an intricate and broad-reaching system of administrative management and accountability that is correlated with an exponential rise in the cost of American post-secondary education over the same period (see Ginsberg, 2011).

Like Taylor's system, the LOM is also built on the back of a deficit perspective of all persons in the system, but particularly the students. It requires faculty to submit their pedagogy to the managerial gaze imposed by assessment specialists. It also assumes, broadly, that learners have no rights in determining the scope or aim of the education that they will receive. It views students, even at the collegiate level, as members of an ignorant class who have come to university for the explicit purpose of learning from the enlightened class. Learning outcomes are, by definition, those things that students are told are important to know as determined by outside experts.

In a section paradoxically and appropriately titled 'Making expectations clear and encouraging student autonomy' in *Learning to Teach in Higher Education*, Ramsden (2003) argues that 'discussing assessment expectations with students is a principal means by which a lecturer can reinforce the view … that understanding rather than recall of isolated detail is *required and will be rewarded*' (p. 189, emphasis in original). Here, Ramsden is clear that student autonomy extends only so far as the guidelines and normative frameworks provided by the expert who will ultimately judge, classify and approve their effort.

Similar to Taylor's move away from the 'initiative and incentive' model, Ramsden (2003) argues that assessment should '… display as much of [a student's] understanding as possible …' (p. 190). The expert must not simply evaluate the educational product, but also open the process for evaluation and critique: to see the inner workings of the student's mental process as she solves a problem or analyses a concept. Like Taylor's workmen who were given 'a kindness' for being in such a system, Ramsden (2003) concludes that 'good teaching helps students to become aware that educationally valid assessment is an opportunity to learn and to reveal the depth of one's knowledge' (p. 190). Students, then, should be happy to submit to the expert, who will evaluate their unknowing, provide instruction and certify them as competent if and when it is appropriate.

In contrast, Dewey argues in favour of the inherent agency and power of students. Dewey (1925/1981) argued that 'there are those who regard childhood as merely getting ready for the supreme dignity of adulthood …' (p. 210). To the contrary, for Dewey, growth is present throughout the continuity of one's life and is merely expanded, refined and extended. Rather than education viewed as the quantitative increase of facts or skills (an additive property), it is an ongoing process of both personal and cultural maturation through reconstruction (a hermeneutic capacity) (Stoller, 2014, p. 12). Education does not simply change what students know—it changes *what they want to know*.

Youth is, therefore, not a preparation for later action but itself a working out of the activity of life in different terms. This why Dewey continually stresses education *in the present*, by which he means that students have a right to actual, meaningful agency in defining the terms and aims of the education they are undergoing (Dewey, 1893/1971, pp. 49–51). Students only grow through experimental inquiry, and experimental inquiry only occurs in environments where students are allowed to voice their opinions and to freely experiment.

The curricular and pedagogical effects of this claim could not be more significant. The traditional school is built on the assumption that there is a fundamental dualism between students and subject matters (Dewey, 1902/1976, p. 274). Education is that thing *done to* students which results in them 'knowing' the subject matter. For Dewey, the opposite is the case. There is no separation between learner and content, or student and curriculum. Dewey (1902/1976) argues that 'the child and the curriculum are simply two limits which define a single process' (p. 276). Dewey intends to shift what he calls the 'center of gravity' of the school away from the disciplinary content to the dyadic, emergent relationship between the experiences of students and disciplinary subject matter (see Simpson & Jackson, 2012).

Dewey's synthesis of the student and the curriculum means that pedagogies and curricula should begin within and be designed around the unique experiences of students paired with the intellectual resources of faculty. This has the further effect of cultivating (rather than restricting) the creative capacity of students, whose goals, skills and talents become the very raw material of a process of inquiry and learning. For Dewey, this right to agency applies to all students and is the only way in which deep levels of growth are possible.

Educating in this way is not simply aimed at improving cognitive performance or higher levels of educational attainment, but it means that school should be a highly dignifying environment for students. The official curriculum, pedagogies and research on teaching ignore the nature of desire and the passions of students altogether (Garrison, 1997, p. 29). Reciprocally, they make no space for failure or loss as a meaningful dimension of learning (see Stoller, 2013). Yet if the purpose of education is the cultivation of students as creative and empathetic democratic individuals, views on teaching and learning must move beyond cold, clinical knowing to including concepts like compassion, empathy and friendship (see Stoller, 2014, p. 88)

Educating for democracy

In the previous section, I showed how the codification of means and ends in both Taylor's principles and the LOM is connected to a dehumanization of subjects in the system. I argued, instead, in favour of the inherent agency of learners. In this final section, I will show how Taylor's understanding of industrial processes, on one hand, and the educational imaginary of the LOM, on the other, are grounded in a teleological view that, from a Deweyan perspective, limits growth and is anti-democratic.

In *Democracy and Education*, Dewey (1916/1980) compares Taylor's system to the Platonic conception of slavery in which the slave 'accepts from another the purposes which control his conduct' (pp. 90–91). Taylor's principles are grounded, first, in a belief that there is a fixed and ideal kind of system that can be located and defined. The skills and attitudes necessary to support this ideal system are determined and articulated by a set of expert managers—an aristocratic class. In order for the

whole to function properly, Taylor demands that all persons in the system conform to the pre-determined, definable components set forth in by his 'scientific' blueprint. The overarching goal is to reach a harmonious and stable system of production through the submission and conformity of persons.

Like Taylor's view of industry, the LOM is deeply teleological at both the level of the system and the individual. Biggs (2003) argues 'quality' higher education, must include the following components:

(1) We have to specify what the 'desired outcomes' are, so that it is clear from the outset what students have to learn, and at what level of skill or understanding. We need to state not only what topics students are to learn, but also what level of understanding is required of them.
(2) We need to arrange teaching/learning activities that encourage students to act in ways most likely to achieve those desired outcomes.
(3) We need to assess to see how well the outcomes have been attained at varying levels of acceptability, as reflected in the grading system. (p. 269)

Such an educational imaginary begins with the assumption that the ends of learning should be established by an outside, expert class (e.g. 'what students have to learn'). It supports these fixed ends with the articulation of the means or processes of attaining them (e.g. 'encourage students to act in ways most likely to achieve those desired outcomes'). Students (and increasingly faculty and entire schools) are evaluated and compared against those codifications to ensure they meet acceptable levels of 'quality' (e.g. 'how well the outcomes have been attained').

For Dewey, such a system is deeply antithetical to the establishment of a truly democratic society. It also restricts intelligence, learning and growth both individually and collectively. This is precisely because, for Dewey, democracy is not a fixed end which is reached, but instead is a platform on which unique ends-in-view emerge and are reconstructed based on the needs of people in the course of lived experience. Democracy is, for Dewey, *a method of social inquiry* through which society is able to understand and create solutions to its most pressing problems (see Bohman, 1999). This further means that democracy is not strictly a political structure (Dewey, 1980, p. 93). Deep democracy can and should exist across all domains, including the political, the economic, the familial and the educational.

Therefore, for Dewey, the primary organizing principle of a school is not subject matters or projected ideal ends taking the form of learning outcomes. Schools, instead, should be organized around communities of students and teachers united in working through collective processes of inquiry (Dewey, 1938/1988b, pp. 31–38). It is only in such a situation that education moves from *having a fixed end* to *being an end*. As Judith Green (1999) argues, '… Dewey understood education as the *process of formation and reformation of free and flourishing individuals* who are capable of perennially nurturing and actively participating within the dynamic,

ongoing development processes of deep democracy' (p. 62, emphasis in original). Schools only prepare students for democracy when they, themselves, are organized democratically. While the AAC&U imagines its goal is to prepare democratic citizens, its deployment of an elaborate system of learning outcomes, rubrics and measurements is, itself, anti-democratic. It is, quite paradoxically, attempting to prepare students for democracy using the tools and methods of a dictatorship.

For Dewey, democratic education was not contained in the specific outcomes of education, but in a reconstruction of its mode of operating. Education must be organized in the way actual instances of democracy are organized: around the experienced problems of communities and lives of individuals. Subject matters, skills and attitudes are not the goal of education, but are supplemental in the context of the actual operation of inquiry catalyzing growth. Dewey (1938/1988b) wrote that 'It is a cardinal precept of the newer school of education that the beginning of instruction shall be made with the experience learners already have; that this experience and the capacities that have been developed during its course provide the starting point for further learning' (p. 49). This does not mean there should be no organization in the subject matter, but that the organization of material is determined as a result of the progressive organization of inquiry, rather than an expert's opinion of the 'logical' landscape of subject matter.

From a Deweyan perspective, deep learning only occurs when the ambiguous, difficult, qualitative and context-laden process of inquiry is allowed to run its full course. Further, inquiry is not an individual process, but it is a social one that requires a democratic environment for its fullest expression. It is only in and through such an arrangement that democratic education and deep learning are possible.

Conclusion

In this essay, I have argued that Taylorism is embedded in the policies and practices of contemporary post-secondary schooling in the United States by showing their conceptual connection to the contemporary LOM. Specifically, I examined the relationship between Taylor's 'tasks' and the reformation of education around the 'learning outcome'. I further examined the view of both with respect to ends, means and the agency of learners. Lastly, I made the case that both Taylor and the LOM held a teleological systems view that is anti-democratic. Drawing on Dewey's educational philosophy, I further argued that the assumptions behind both positions were antithetical to the development of deep learning and democratic forms of education.

At the root of both Taylor's principles of scientific management and outcomes-based education is an impulse to create an idealized social ordering through a definable set of skills, attitudes and traits. In doing so, both positions mistake *scientific variability*, which is a kind of error or flaw in the scientific process that must be removed, for *social variability*, which is necessary for and the very catalyst to productive democratic life.

In order for school to serve the interests of a pluralistic, participatory democracy, the exact opposite of outcomes-based education must become the norm. Schooling environments, pedagogies and decision-making processes must become heterogeneous rather than homogeneous. They must find their ordering principle in the unique problems, talents and goals of the individuals present in the community. They must embed trust and dignity in all persons and at all levels. This, for Dewey, is both the essence and lifeblood of democratic education. It is only in such an environment that there can be recognition of mutual interest, collaboration and continuous recreation of both self and world.

Notes

1. In this essay, I am specifically interested in the learning outcomes movement (LOM) as conceptualized and deployed in American post-secondary systems, but the philosophical critique established here is intended to be applicable across any system reliant upon centrally articulated outcomes and assessment efforts supporting the normative movement toward those outcomes.
2. I would like to thank an anonymous reviewer for assistance in the clarification of this distinction.
3. With limited space available in this essay, I am regrettably unable to offer a more robust articulation of the shared philosophical foundations between behaviourism and strands within the modern cognitivist theories that underpin the LOM. Here, I refer readers to Johnson and Rohrer (2007) and Lakoff and Johnson (1999, pp. 74–93).
4. Contemporary constructivism has done significant work to erode this view, which still dominates the discourse of the LOM. Yet constructivism still retains some problematic foundationalist assumptions. This issue will be treated in more depth in the following section.
5. Models and typologies for learning outcomes have been proposed by psychologists as varied as: Bloom (1956) and Forehand (2010) whose work focuses on instructional objectives and learner behaviours; Merrill (1983) and Gagné (1984) whose work focuses on the processes of thinking; and Kraiger, Ford, and Salas (1993) whose work focuses on a multiple modalities of thinking, acting and feeling (Lim et al., 2007, p. 2).
6. Here it might be assumed that contemporary constructivism has refuted this position but, at the ground, most constructivist paradigms still hold a foundationalist epistemology (see Garrison, 1995; Phillips, 1995; Vanderstraeten, 2002).
7. With limited space available, I am regrettably unable to offer a deeper articulation of how pedagogical goal setting and curricula may be constructed in a Deweyan system. Dewey was not opposed the idea of goal setting and, in fact, his system required significantly more planning and preparation by teachers than is required in a traditional system. A key point is that, for Dewey, goals were to be designed emergently and in a way, which began with the standpoint of the student and ultimately integrated experienced problems (the student's perspective) with subject matters (the instructor's perspective). Students should not conform to the logical structures of subject-matter experts, but instead subject matters were to be understood as illuminating and extending the emerging shape of a student's horizon of understanding for the purposes of meaningful growth. Here, I refer readers to Simpson and Jackson (2012) and Tanner (1991, 1997).

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