Classrooms in America are overwhelmingly authoritarian and undemocratic. They focus on fragmented knowledge that is disconnected from the students’ lives. Proven reforms are resisted at all levels, and systematic progressive change is non-existent nearly a century after the progressive movement. Why is this so? The standard liberal outlook is that the schools are ‘broken’ and ‘neglected’, but that they have the potential, with reform, to be a major progressive force in society. This paper questions these assumptions through a review of the seminal educational-economic work by Bowles and Gintis: Schooling in Capitalist America [1]. The major claim of this text is that our educational system’s primary role is to mirror, support, stabilize, and reproduce the fundamentally hierarchical and undemocratic social relationships that exist in the majority of American workplaces. The major arguments and evidence of this text are reviewed, and implications for PER will be briefly mentioned.

I. Introduction
The current state of our educational system is far from ideal. Nearly a century after the progressive education movement, an overwhelming majority of classrooms are based on the transmissionist model: learning is authority-based and focused on fragmented, rote knowledge. We wonder why proven reform ideas are systematically resisted or nearly impossible to implement on a large scale.

Implicit in this wondering is the assumption that our classrooms are the way they are because our educational system is ‘broken’ or ‘neglected’. The state of our classrooms is an unwanted or accidental result of a lack of resources, personnel, and coherent ideas for reform. However, underlying these beliefs are even deeper assumptions about the role of education in our society: that education is inherently progressive and in alignment with our own educational goals. This assumption is so fundamental to the accepted paradigm that few have investigated to see if it is actually true.

I claim that the PER community, with its roots in traditional physics research, has had little exposure to the history of education and educational reform in America. In this paper, my goal is to introduce the community to a seminal work in the study of educational institutions, Schooling in Capitalist America, written by Samuel Bowles and Herbert Gintis [1]. This work has had a dramatic influence on the educational community, and inspired a wide range of research. So much so that an entire session was dedicated to the 25th anniversary of the text at the 2002 annual meeting of the American Educational Research Association. Using extensive statistical and historical evidence, Bowles and Gintis question the fundamental ‘hidden assumptions’ of the liberal educational paradigm. In the remainder of this paper I briefly review the basic arguments and evidence put forth by Bowles and Gintis, and discuss a few implications for PER.

II. ‘Hidden Assumptions’ about the roles of education
Few of us in PER are explicit about our goals for educational reform. Some would like to ‘make a better physics class’ by improving classroom environments and curricula. Some would like to encourage rational/scientific thinking or national ‘scientific literacy’ [2]. Other goals include independent thinking, personal development, and social/economic equality. Behind these
goals lie ‘hidden assumptions’ about the role of education in our society. From the history of progressive education, Bowles and Gintis distill out three major roles that are assumed.

**Integrative Function:** To prepare children for their roles as adults in society, to provide them with the skills necessary to survive and work, and to socialize them so that they can work within the standardized norms and social relationships.

**Egalitarian Function:** To provide every child with an equal opportunity to excel, so that those who do will be able to use their education to their advantage. Those in lower social positions will be able to improve their lives, and education may mitigate the inequality between rich and poor.

**Developmental Function:** To provide opportunities for every child to explore their potential and interests, to help them develop into a fully independent and realized individual.

I claim that the smaller scale goals that I briefly discussed for the PER community are subsumed under and assume these roles for education in our society.

III. Questioning Assumptions: The Meritocratic Myth

Given the state of our educational system, and the growing inequality in our society, it seems likely that there is a tension between the three roles of education, with the integrative role dominating the other two. Why do we not question the compatibility of these roles? The answer lies in yet another set of hidden assumptions that many, including Bowles and Gintis refer to as The Meritocratic Ideology.

The meritocratic ideology begins with the assumption that the modern economy requires a highly hierarchical workplace, where technical skills and abilities determine one’s place in the hierarchy. Those with more skills and higher cognitive ability are more able and productive, and thus scale the hierarchy so that they can aptly direct production. These individuals are rewarded accordingly for their increased productivity. The primary place for the development of these cognitive skills and abilities is the educational system: each year of education leads to higher cognitive development. Our educational system evaluates students based on their cognitive progress and tracks them accordingly, so that each will be prepared for placement in a role suitable for her abilities.

Unfortunately, Bowles and Gintis show that the meritocratic ideology does not hold up to empirical scrutiny. They present a great deal of data gathered from a number of studies (by themselves and others). First, in their recent ‘Schooling in Capitalist America revisited,’ [3] Bowles and Gintis show that social mobility in America is a myth. By focusing on intergenerational wealth mobility, they show that the meritocracy cannot be an effective mechanism for social mobility because that mobility hardly exists. Second, Bowles and Gintis show that the mechanism for more education leading to more income is not primarily cognitive in nature. They agree that there is a correlation between education and income level, but when they look at people of the same cognitive ability, the correlation between education and income is nearly unchanged [4]. Rogers [5] provides data that question the tracking and educational placement at the core of the meritocratic ideology by showing that those at a wide range of cognitive levels gain the same economic benefit from higher education. If so, then why do we track and test students? Finally, Bowles and Gintis [6] ‘cast doubt’ on the assumption that cognitive ability is becoming an increasingly important factor for determining incomes in the technologically advancing workplace.

If the meritocratic ideology isn’t supported by actual data, then why is it so pervasive?

IV. The Correspondence Principle

We have seen that the meritocratic ideology does not explain the role of education in American society: the cognitive skills developed in schools are not the primary mechanism for determining income at work. If this is the case, then what role do schools actually play? The problem lies in the assumption that the role of schools is primarily
cognitive. In addition to schoolwork, the students ‘learn’ a great deal from the pervasive social relations that exist between the students and teachers, the teachers and administrators, the students themselves, and the students and their work. Bowles and Gintis claim that the ‘learning’ of social relationships is much more central to the role of schools than the cognitive work\(^1\).

The major claim of *Schooling in Capitalist America* is that the primary role of education in American society involves a correspondence between the fundamental social relationships that exist in American schools and workplaces. Therefore before we go any further, we must discuss the state of the workplace for the majority of workers in America. This includes factories, banks, retail stores, telemarketing offices, and fast food restaurants: a world of uniforms and time clocks. The American workplace has been shaped by the ‘scientific management’ of ‘Taylorism’ [7]. Workers are part of a rigid hierarchy, and are expected to do what they are told. They play little or no role in deciding how their workplace is organized, or how work gets done. They accomplish fragmented (divided) tasks that are of little meaning to them, since someone else profits from their labor. Thus, unlike the political sphere of American society, the economic sphere is fundamentally non-participatory and undemocratic.

Simple observation allows one to see that there exists a significant correspondence between the social relations in American schools and those of American workplaces. Both exhibit unequal, hierarchical, and authority-based environments. This is the starting point for the major argument of *Schooling in Capitalist America*, which Bowles and Gintis refer to as the Correspondence Principle: The educational system, like all major institutions in our society, evolves to mirror, support and reproduce the basic hierarchical and authoritarian social relationships that are fundamental to the capitalist workplace and necessary for profit.

Our schools are fundamentally oppressive and authoritarian not because they are ‘broken’ or ‘neglected’, but because they are successfully playing their primary role in society. Thus, the educational system is part of how our society evolved to stabilize itself in spite of highly unequal wealth distribution and rampant exploitation. Just as they did in feudal societies, individuals participate in oppressive and unequal socioeconomic relationships not primarily out of fear, but because they view these relationships as normal and appropriate. In our society, education is one of the primary mechanisms to create these feelings of normalcy.

Here are some of the specific aspects of the correspondence principle:

*Legitimization:* Repeated contacts with the educational system, which seems impersonal and based on reliable criteria, convinces students (and their parents) that they are ending up in an appropriate place in society based on their skills and abilities. Thus, people accept their position in life: they become resigned to it, maybe even considering it appropriate or fair.

*Acclimatization:* The social relationships in the schools encourage certain traits, appropriate to one’s expected economic position, while discouraging others. Thus, certain relationships are considered normal and appropriate. Subordination to authority is a dominant trait enforced for most students.

*Stratification:* Students from different class backgrounds, races, ethnicities, and genders are overwhelmingly exposed to different environments and social relationships and thus are tracked and prepared for different positions in the hierarchy. The different experiences and successes lead each student to see her place as appropriate.

Bowles and Gintis present a great deal of evidence to support the Correspondence principle. First, the various classroom social relations that exist in America reflect the social

\(^1\) This does not imply a distinction between ‘cognitive’ learning and ‘social’ learning. I am only trying to claim that the limited range of learning that the Meritocratic ideology focuses on is not sufficient. Thanks to N. Finkelstein for pointing out the conflation.
class and expected employment destinations of the participating students. Secondary school environments tend to be more discipline-based, while community colleges and lower-echelon institutions encourage dependability, and elite universities stress internalization of institutional norms [9]. Even within secondary schools, the stratification can be seen between the vocational and college tracks [10]. Next, there is a disturbing but unsurprising correspondence between the traits encouraged and discouraged in the schoolroom and the workplace. Creativity and independence are both negatively correlated with grades and job performance, while submission, dependability, punctuality, and persistence are rewarded [11]. Comparing the correlations, one finds that the correlation between the trait and performance evaluation is nearly the same in each of the two environments.

Briefly, Bowles and Gintis’ historical argument is that this history of American education is not accurately expressed as the poor and working classes clamoring for more education in order to gain social and economic inequality. They show that periods of educational reform came after periods of social and economic upheaval. Many times, educational expansion and reform were explicitly pushed by the capitalists with the idea that education could quiet social unrest, pacify the population, and avoid strikes. There was frequently great resistance to education from the poor and from immigrants. The text also discusses how the reforms of the progressive movement were selectively incorporated in order to help the educational system reflect the changing workplace: tracking, school testing, vocational education, and administrative oversight of teachers were all consequences of the progressive reform movement [12].

V. Implications for PER and education reform

If the Correspondence principle is correct, then the implications for PER and educational reform are immense. If the economic system is primary and oppressive, and the educational system evolves to mirror and reproduce it, then the liberal assumption of making society better through education is fundamentally flawed. The educational system is anchored to the economic system, so attempted changes in the educational system will either fail to be accepted, fail over time, or be selectively adopted to better mirror the economic system. So we cannot hope to reduce inequality or encourage the development of fully realized independent thinkers on any significant scale. These goals contradict the primary purpose of education: to mirror and reproduce the social relations of the capitalist workplace. We may continue to teach and improve education, but if we wish to work towards making society more just, equal, and fair, we must do so outside education and academia by working to fundamentally dismantle and restructure our economic system.

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