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ABSTRACT

This essay suggests that a profound philosophical misunderstanding exists concerning western science and its application to education and specifically to teaching. Based on the analysis of Japanese architect Arata Isozaki, the paper suggests that western identifying principles ha e taken on the role of "games" where deep introspection is denied and replaced with mere outward projections for others to see. One pervasive western game is scientism which, especially in education, has false aims that result in distortive forms--the myth of prediction and the myth of positivism. Though positivism is based on a myth, the game of positivism is played as if it were still a viable position in science. Two positions that oppose positivism are reviewed. The first is that espoused by D. C. Phillips and grounded in analytic philosophy and philosophy of science; the second is from Henry Giroux, Joe Kincheloe, and others who were trained in European social theory. Neither position values positivism's founding tenets nor its general project of reductionist prediction and absolutist certainty. Tenets of postpositivism are introduced, with emphasis on the concepts of theory, culture, context, history, and ideology. The paper concludes that the escape from certainty and prediction is at the heart of postpositivism with its dominant characteristics of multiplicity and pluralism, dispersion of meaning, tentativeness, and contingency. One of the practical results is to give up blaming both students and teachers for general educational failure, and to develop instead a cooperative commitment to make teaching count while recognizing the noncertainty of the present. (JDD)

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POSTPOSITIVIST TEACHING; BEYOND THE MYTH OF PREDICTION

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Introduction

This is an essay in philosophy of education and teaching that suggests for both American and Japanese schooling and for professional education a serious theoretical problematic.[1] The dilemma is a profound misunderstanding of present day philosophy of western science and its application to education and specifically to teaching. Resulting from the theoretical problem is a situation within education theory/practice analogically close to a description of the historical development of Japanese culture offered by internationally renowned architect, Arata Isozaki. His analysis comes as no surprise to the members of this audience, but importantly what may be helpful is the general insight it provides into "philosophies of teaching."[2]

Isozaki starts his "story" of Japan with the identification of two kinds of cultural vectors that produce alternating pendulum-swings of change. Beginning in the seventh century and continuing to the present day, the first consists of externally directed forces on Japanese life that lead to internal upheaval as well as great changes in the indigenous culture. These periods are followed by intervals of resurrengence of internally directed forces that result in times when "Japan. . .[becomes] closed and introverted in the extreme."[3] Isozaki's specific interest is

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in a deeper look at "Wayo Style," of indigenization. It produces, he claims, "[a recurring] introspective self-identification," characterized by "reduction and refinement in pursuit of true uniqueness" of the Japanese people and their nation.[4] Significantly from above, because of the intense, internalized focus of "wayo," its force can only be altered through external pressure--and resulting domestic strife.

As I understand Isozaki, "Wayo modification" concerns almost every aspect of Japanese cultural life that has been "developed and refined into arts or `ways' (do) over the centuries."[5] The "do" is both a method of mysticizing the form of activity as well as ritualizing the steps to master its practice. It is mastery that is always sought and never attained. Examples, as all here know again, are tea ceremony, calligraphy, martial arts, and performing arts. In western terms, Isozaki likens this "mechanism of Japanese behavior" to the playing of a game wherein all that matters is not the game's principles but only its rules. He sums that a contrast between Japan and the west is that in the former there are rules and practices that explain the Japanese identity and in the latter there are particular identifying principles. Exemplars are French rationalism, British empiricism and American democracy.

To begin this essay on that is finally about teaching, I want to accept Isozaki's analysis but modify it in one regard. I suggest that the western principles he names have themselves taken on the role of <u>games</u>. Importantly any of these is characterized by a vector of externality rather than internality. Here deep introspection is denied and replaced with mere outward projections for others to see. Presently there exists in

the west, a generalized lack of and fear of self-study and self-exposure--by all but a few "critics." The games, of capitalism and liberalism for instance, are "coverups," in which the rules distort the played reality. The goal of these games, all in the name of their principled ideals, is to mythologize and rationalize any actual fulfillment.

An example is the American game of "democracy," which has been and is in many respects a sham. However much it is touted in its ideal--of egalitarian universal participation--the limitations (even the failures) of democracy are evident: Economic and political power that is held by the very few over the much less-powerful many, coupled with the crippling rhetoric of "majority rule" over minority representations, all caught up in the totalizing hegemonic pull of dominant ideologies of individual autonomy, "making it" though hard work, and equal opportunity.

For the purposes of this paper, another pervasive western game is "scientism,"[6], a distortion of modern scientific philosophy and practice. Here an attempt is made to begin to expose the game, in its education manifestion: Its rules contain ties not only to empiricism but also to rationality, to knowledge, and even to individualistic identity (again central concepts of western life with their own gaming proclivities). An initiating premise, soon substantiated, is that "scientism" has taken on a life of its own. In the American conventional commonsense and in many domains of its practical application, such as business and politics, it has been played increasingly (and varyingly) over the past fifty years or so. It has become "scientism" rather than

science because of misunderstandings about its philosophic and practical theory and application and because of mystifications based on these misunderstandings. It is a game that especially in education has false aims and resultant distortions.

Scientism in Education

Scientism in education has taken two distortive forms, the first is the myth of prediction and the second, ironically to counter the falsity of prediction, is the myth of positivism.

A most virilent form of prediction concerns teaching. As indicated it is built on a more general myth of predictive certainty in science, and it results in a mystifying and masking of appropriate pedagogical aims and practices in classroom life. In its strongest variations, teaching prediction is sought through applying previously conceptualized, instructional scripts (as models of practice) in order to reach previously determined learning outcomes (as standards of knowledge). Consider, for example, the posited correspondence of "teaching styles" and "learning styles" and what is to result from their matchup. One envisions a teacher, in proper "scientific" fashion, studying the correspondence model, observing her students and identifying crucial ingredients, adding in her own "style" or styles that match, and producing successful "experiments." Even teaching visions that are less like measured experiments contain the myth of prediction. For example, calls for the "art of teaching" and the "wisdom of practice" imply that good teaching can be realized (read predicted) if only the artistic principles are recognized and applied or the principles of practice are set out and implemented.[7]

The aim of teaching prediction, I have suggested elsewhere, distorts classroom life. It creates false visions and false hopes for teachers (for administrators, students, parents, legislators, and the public as well). As any experienced, thoughtful teacher knows, classrooms, full of contextualized and situational events involving teachers and students, are "fraught" with contingency. Whatever is planned never quite "comes off without hitches." Indeed most teachers laugh surprisingly at their own partial "successes," their own partial predictions. The caveat here is that they too are caught up in the prevailing myth of prediction. In the most invidious strains, the myth is harmful both to novice and to veteran teachers:

> It is harmful to novices because they are taught to believe that there is something. . .[predictable and certain in teaching] something objective, final, whole--some `it' to be a teacher. They feel frustrated and inadequate when they do not learn. . .[this it, and when their predictions fail]. It is harmful to veterans because they know the impossiblity of prediction yet come to doubt their own experience. . . . They too are disappointed and disheartened.[8]

Others, not surprisingly, have recognized their own forms of the myth of prediction in various accounts of distortive science in education.[9] Blame has been encapsulated, at least in part, in an attack on scientific "positivism." Here positivism too has become a <u>game</u>, and its practice in the vernacular is "gameplaying." It is a widespread misunderstanding of the meaning of positivism, its history, its "partial demise," and its remaining influences. In order to understand the "myth of positivism," a little background in philosophy of science is required.

<u>Modernity</u>, <u>Science</u> <u>and</u> <u>Positivism</u>:

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In an overly simplified abbreviation, the foundational equation of modernity (of the past three or so hundred years) is epistemological. The equation is this: modernity equals knowledge equals science. Its roots are the modernist separation of self from object, of self from others--of man (sic) from reality. Just as mathematical equations represent problems to be solved, so too the epistemological equation has been problematic. Man desired to know (with certainty) that which he did not initially know. Thus he sought and developed forms of knowledge that promised certainty (read prediction), and over several centuries (actually over the millenia of western culture) he came to value most those forms that promised the most certainty.

As the aim of modernist epistemology, certainty took on various manifestations, in various philosophical forms.[10] These theories located both epistemologically certain sources of knowledge and epistemologically certain verifications of knowledge. What is known as objectivist foundational certainty has been posited for <u>either</u> side of the epistemological dualism--in the self or the mind, or in the object or reality.[11]

The correspondence of modernity, science and certainty is well described in a recent account from philosopher, Stephen Toulmin. Here is his listing of the major tenets:

The Modern Framework (of science)

On the Nature side:

Nature is governed by fixed laws set up at the creation;

The basic structure of Nature was established only a few thousand years back;

The objects of physical nature are composed of inert matter;

So, physical objects and processes do not think;

At the creation, God combined natural objects into stable and

hierarchical systems of `higher' and `lower' things;

Like `action' in society, `motion' in nature flows downward, from the `higher' creatures to the `lower'ones.

On the Humanity side:

The `human' thing about humanity is the capacity for rational thought and action;

Rationality and causality follow different rules;

Since thought and action do not take place causally, actions cannot be explained by any causal science of psychology;[12]

Human beings can establish stable systems in society, like the physical systems in nature;

So, humans live mixed lives, part rational and part causal; as creations of Reason, their lives are intellectual or spiritual, as creations of Emotion, they are both bodily or carnal;

Emotion typically frustrates and distorts the work of Reason; so the human reason is to be trusted and encouraged, while the emotions are to be distrusted and restrained.[13]

To this brief overview, Toulmin contributes two significant points. The first is that there has always been a less-certain tradition within modernity--as seen in the development of the humanities and the arts. Historically Toulmin proposes that modernity (as it has evolved to this era of late and postmodernism) has <u>two</u> countercurrents as its roots. Along with the writings of Descartes and Bacon and the experimentation of Galileo and Newton as the initiating scientific tradition, there is also the earlier humanist tradition with contributions from Erasmus and Montaigne, from Shakespeare and Henry of Navarre. The two currents are these:

> The first was embodied in the Renaissance humanists. . . who lived in times of relative prosperity, and built up a culture of `reasonableness' and religious toleration. The second. . .was embodied in the. . .17th-century rationalists. . .who reacted to times of economic crisis . . .by giving up the modest skepticism of the humanists . . .[in order to look for] `rational' proofs to underpin beliefs. . .[about competing religious positions and by extension all other matters of existence] with a. . . [neutralizing] certainty.[14]

As is well-known, the contest between the two currents has never been an

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equal one. Over the past three hundred years, and in spite of times of humanist influence as in nineteenth century Romanticism and Idealism, the scientific tradition became "the received view" about the meaning of modernity--and the equation of modernity, science and certainty was taken for granted.

The second point from Toulmin concerns this received view. The epistemological aim was to ground modernist certainty in a vision with objectivist, essentialist and universalist dimensions. The project was to be accomplished thusly: "The dreams of a rational method, a unified science, and an exact language, unite into a single project. . .designed the `purify' the operations of human reason, by divorcing them from. . .particular historical and cultural situations."[15] However, this aim has never been realized. Indeed by the late twentieth century, the general "modern scaffolding" of science is dismantled, and "not one of . . .[the tenets listed above] is still a part of educated commonsense."[16] This is due to the theoretical and professional development of both the natural and social sciences (often called human sciences in Continental thought). One reason was the "failure" to prove the foundational certainty of the tenets of the Modern Framework, and a second, according to Toulmin, was precisely the penchant of each generation of theorists to interpet "the broader meaning of science. . .to meet the demands of its own . . . [socio-political] situation."[17]

This dismantling, however, has not followed a smooth path toward a vision of science as embedded in a social world. Not only have there been times of strong humanist influence--a kind of anti-science--but there have

also been times of very strong searchings for certainty. One of the latter occurred in the early twentieth century through the writings of the Logicial Positivists. Their aim was to ground knowledge in a theory of "unified science." Herein a hierarchy of forms of knowledge was created with mathematics, logic and physics at the top--because their inquiries resulted in the most certainty, in "Truth." Various efforts by a group of diverse thinkers were united in a set of common positions toward the epistemological equation: a separation of science from metaphysics, a reliance on verifable meaning, and the significance of observation statements. The latter are especially significant because even in this movement there is understanding that knowledge is possible only through language. Actually, the general "linguistic turn" of the twentieth century did much to dismantle the "received view."

A final point about Logical Positivism, as D. C. Phillips points out, is that philosophically it has been "dead" for about thirty years. Gone in theory, at least, is the strong project of unified science. Gone is a strict correspondence idea of truth sentences, and surely gone is any idea of neutral observation. However, what remains in education theory and practice is the <u>game of positivism</u>. It is played as if positivism were still a viable and "living" position in science when it is not. It is based on a myth.

<u>The Myth of Positivism in Education</u>

As indicated above, the myth of prediction (especially of teaching prediction) is related to the myth of positivism. Both, to emphasize the present point, are based on misunderstandings of the theory and practice

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of science. Above the potential harm of the myth of prediction was suggested. The relationship of the second myth, of positivism, to the first myth--to education in general--requires some explication.

There are two prevailing positions toward postivism. The first is from Phillips and others of his "camp," generally trained in analytic philosophy and philosophy of science. Clearly the roots of this position are located in the beginnings of science in the seventeenth century. Speaking for this view, Phillips' principal claim is that the term "positivism" is used by his opponents as a blanket condemnation against what all agree are outdated educational "philosophies" such as broad notions of behaviorism and empiricism.[18] There is, Phillips writes, a "rampant anti-positivism" that distorts both what positivism was philosophically and what its "demise" theoretically means. Here is Phillips at his most critical:

> The supporters of the Position. . .[opposing positivism writ large] have been right. . .to oppose narrow-minded scientism. But they go too far; not <u>everyone</u> is narrow-minded. . . .[Furthermore] they play with. . .half-truths. A little more attention to the philosophical controversies would have sensitized them to the dangers.[19]

The second position is from Henry Giroux, Joe Kincheloe and others who are generally trained in critical studies and more broadly, in European social theory. Clearly the roots of this position are located in the beginnings of the humanities in the sixteenth century. Citing Giroux, Kincheloe asserts that "positivism has taken on a life of its own." Here is the central point:

> What is important in the culture of positivism involves explanation, prediction, and technical control. . . . This is a retreat from the Western humanistic tradition

> . . . . Questions concerning the social construction of knowledge . . .are irrelevant when knowledge is assumed to be objective and value free.[20]

What is significant about these two positions is that <u>both</u> oppose positivism but for different purposes. For Phillips and his fellows, that positivism is alive and well is a myth because its tenets are no longer followed by any well-informed and thoughtful scientist or philospher of science. (Recall Toulmin says anyone with educated commonsense.) Its present "life" in education demonstrates serious misunderstanding and points to a lack of study about the theory and practice of science, and about the importance of the changing theoretical relationship between the natural and human sciences. For Giroux, Kincheloe and their fellows, positivism is also a myth, one they believe does continue to be perpetuated in educational theory and schooling practices. For them, it is manifested in the scientism of prediction described above. (I see this as well but do not blame "science" for its presence.) Phillips, one might say, believes that the critical theorists have created the myth in order to have "a straw man" to attack. Kincheloe, representing his camp, believes that Phillips (and philosophic as well as educationist bedfellows) actually perpetuates positivism and only "mythologizes" its demise.

<u>Postpositivism</u>

As just indicated, the two prevailing camps of educational theorists battling over positivism are both "postpositivist." Neither values positivism's founding tenets nor its general project of reductionist prediction and absolutist certainty.[21] Both agree but in importantly

different ways about a set of central concepts of postpositivism. These are theory, culture, context, history, and ideology. Moreover they are understood to constitute two positions toward "the social construction of of reality." What this means in "weak" and "strong" postures sums the conceptual breakout that follows. A caveat. This interpretation comes neither directly from Phillips nor Kincheloe; although informed by these particular writings and many others, it is an independent assessment and part of a general, on-going postmodern philosophical project.[22]

Generally agreed upon by postpositivist theorists is theoryladenness, the idea that everything is "theoretical" to some degree. This agreement starts with and shifts from the positivist belief in the separation of theory and observation and of naked observation upon which theoretical meaning is placed. As N. R. Hanson pointed out in what was the first move toward postpostitivism, no observation is pure and neutral.[23] His point was that one "sees" what is expected, i. e., is "conditioned" to see--in a cultural sense. An example is the many varieties of snow recognized by the Eskimos. In this "weak" position, theoryladenness is a part of perception itself. It is a part of individual and group psychology. And, as the initial postpostitivist tenet, it is generally taken for granted.

In contrast to the weak position, the strong position accepts psychological and cultural theoryladenness but extends the influence. The point here is that theory itself is theoryladen; science or any other form of human inquiry is influenced by culture, history, and ideology, and by a particular context. These in turn influence each other as well as the inquiry, the latter that develops with particular theories, concepts,

tools and processes. Thus in science, the questions asked, the data sought, the instrumentation used, the results found, and the meaning attributed are all theoretical constructions. These elements are all understood as "selections" from among possibilities. Given theoretical contingencies, the path of science "could" look different.[24] Science in this strong sense is part the very general and contingent hermeneutic of human meaning.

Culture takes on both a particular and a broad meaning in postpositivism. The broad view extends from theoryladeness and is the agreement that since culture influences what is taken as "the meaning of life," it also influences science. There is no "pure" world and no "pure" inquiry of it. Also accepted by all is the particularity of culture, but again there is a significant distinction between weak and strong social constructions. The weak position harkens back to a positivist notion of cultural universals--i.e., is not quite willing to let them go. Thus posited are cultural "essentials" that appear to exist in all present cultures, although their particular "makeup" differs. One is these is science.

The strong position accepts the idea of general similarites--but is more interested in particular manifestations. This position, perhaps influenced by postmodern insights, locates cultural meanings as tentative and as within larger intellectual times. Thus the idea of cultural universals is itself a construction of modernity, a time when certainties across cultures were sought. Strong postmodern postpositivism asserts that there never were and never are certain cultural universals but instead

always are changing practices, as well as distinctions (and competing views) among groups, among persons. To sum, this is to agree that culture has a strong influence on "life," but it is more. It is to say that the influence always has a particularity of time, place and person. This particularity extends to what counts as science and to its development over time.

Closely related to culture is the concept of context. Here weak and strong positions diverge, although both still sometimes employ the same term. In the weak constructionist position, context encapsulates the two elements just described: a theoryladen, cultural influence that plays out in a kind of benign societal particularity. Paradoxically this is psychologized and acknowledged as "individual differences." In the doing of science, this context is recognized but then put aside in order to "do the work." Of course, context influences but its influence can be worked through and changed. However, some changes of context such as the influences of race, class and gender are more difficult to work through than others, and these deserve special attention. The aim (reminisent of a bit of positivism) is for science to be done "regardless of" these latter factors. Anyone can be a scientist and do science.

While strong constructionists continue to refer to context, many are more comfortable with notions of "structure" and "poststructure." Here context takes on a hard-edged influence: it matters who is and does science. It matters that the work is done in a power-driven, hierarchical society in which some few (and some few disciplines of inquiry) continue to dominate the many (and other fields in terms of cultural capital.[25])

Context as structure means that certain societal categorizations are strongly "deterministic." However, a serious tension exists for strong constructionists over the relationship between structure and post-structure. Many continue to recognize the importance of structures even as they want to theoretically give them up. Giving up means to move to the particular in terms of context in the strongest possible terms but not in a reinscribing of psychologized individualism.[26]

In postpostivist history, the two positions continue conceptual divergence. The weak position proposes a "historically sensitive science"[27] and the strong position posits science as "historicized." The first incorporates scientists and philosophers of science recognizing that their work is generally influenced by the "time" in which it occurs and that their work has evolved from that done previously. They believe that present experimentation and therorizing rests on the "great discoveries" of others. Initially these discoveries were understood to come from "great discoverers," but recently the contributions of "scientific communities" have been acknowledged.[28] In the spirit of Kuhn, Popper, Lakatos and others, they no longer accept a simple version of "accretive" science, However, still there is a kind of linear "progress" embedded in the metaphysic of their work. This is often encapsulated as historical trends and general accomplishments over time. With regard to these generalities, they do know that some times have been more conducive to scientific work than have others--consider the struggle of Galileo for instance. For them, history and culture are similiar in their influence.

The second, the position of science as strongly "historicized," builds

on a relational, situated notion of scientific work and theory rather than a linear model. A significant aspect of this relationship is the assumption, named as structural or poststructural above, of an historically developed, stratified society within which any experimentation, discoveries etc. must be located. A strong construction posits that scientific genius is not innate but rather a matter of contingent history. Furthermore, of primary importance for understanding genius and contribution is the particularity of the social/scientific moment. Here the idea is that the exact science is "as it is" because of its historicization. This position accepts the realism of the physical world but most strongly believes that whatever is done with it is constructed. Lastly theories are themselves historicized. Overall it matters and will matter, for their specific content, whether they are constructions of modernity or postmodernity, given the necessary connection between the two times and their aims, as well as the movement toward their differentiation.

Lastly, weak and strong social constructionists have differing ideological positions, positions toward power and change. Two comments are in order: First, a principal difference concerns how each defines change in society. The first sees society as transforming, that is as changing in a kind of progressive sense just as science provides better answers. The second sees society as changing not necessarily "for the better" but as capable nonetheless of tranformation. The first is an ideology of liberal reform and the second is an ideology of radical alteration. Importantly, given the aim of science, the field is not generally, ideologically

conservative. A second comment concerns how power is defined--and what kind of power is appreciated. It is interesting to speculate about the possibility of a democractic, or "egalitarian," postpositivist science given the kinds of expertise believed necessary by its theorists and practitioners. As indicated above, both groups nowadays believe that science is undertaken in communities of inquirers. Pertinently, however, it is doubtful if they believe that the power of their inquiry--its expertise--ought to be shared by everyone. However, this is not to say that many aspects of scientific work are not intended for the betterment of society and for most of its people.

Conclusion: Postpostivist Teaching

To conclude this essay in philosophy of teaching, I want to return to Isozaki's description of "game," and to my own take on this that I call "gameplaying." As he writes, for the Japanese, there are both positive and negative features of what is the game of "wayo." Overall he poses that understanding the historical process of cultural change may help in "escaping the cycle of eternal recurrence." It is this escape from certainty and prediction that is at the heart of postmodernism--and I take at the heart of postpostivism.

The point of utilizing Isozaki's insight has been to apply a game metaphor to the western penchant for "eternal" principles, and then to see that in spite of their idealization, attention to them is actually "gameplaying." That is, to recognize that a process of posturing, of a failure to be self-critical, has resulted in the same kind of rigid reification for the west (and the resulting contradictions and strife)

that Isozaki fears for Japan. By the way, one example he offers is the merging of reality and image that accompanies a "simulated" society in which daily life is based more and more on interaction with the media.[29]

The point further has been to "expose" the particular game played in the name of western science, of the myths of prediction and of positivism that have been its outcome. Thus, I believe, a scientism exists in western culture that misunderstands extant philosophies and practices of science. Thus, also, as previously described, a scientism exists in education theory and practice and especially in teaching. This I attempted to describe in terms first as the myth of practical prediction and second as the myth of theoretical positivism. What is needed now is to renounce scientistic gameplaying in education and to give up both the myths of prediction and positivism. What is desirable instead is an initial conception of postpositivist teaching--and the commitment not to make "it" into a game. At the outset, any conceptualization needs to incorporate the elements of postpositivism just sketched.

As the title of this paper attests, my own interest is in a theorizing of "postpositivist" teaching, of postmodern teaching in a more general sense. Because the latter term is less technical, it substitutes for postpositivism in conclusion: Postmodern theorizing takes into account the conditions of the post-world--in all of its manifestations.[30] Among these in the west are postindustrial economies, postliberal politics, "postmodern" even anti-modern arts, poststructual social theories. To date there is no definitive statement about the meaning of postmodernism.[31] This is appropriate because to define it appears antithetical--a reduction

and reification that characterizes modernity rather than postmodernity.

Even without clear, concise definition, however, something can be said about the spirits and intentions, about the conceptions, of postmodern theorizings. A first notion is the multiplicity just manifested: there are no single economies, politics, arts, or theories. Within each of these domains of human life (and all others) there are only pluralities--and blurred distinctions between them. A second idea is dispersion. Since meanings are multiple, they are also not fixed, not only not fixed across time but also not fixed in the moment. Thus meaning is always more or less or other than its statement and exemplification. A third aspect of postmodernism is tentativeness, tied both to particularity and to momentariness. This tentativeness--and feelings of ambiguity that often result from its recognition--means that all there "is" is a kind of "present." Such a present (one recalls) still incorporates the idea of strong historicization described above. A final component, clearly related to all these others, is contingency. This is the idea of the absence of personal anchors, societal foundations, theoretical frameworks: it is non-certainty in its most basic sense.

A sense of postmodern teaching emerges from the concepts just presented. It is--it is important to emphasize--the antithesis of predictive, postivistic teaching. To begin to envision postmodern teaching seems "the thing to do"[32] for the following reasons: Postmodern teaching is realistic, an idea that fits in a general way the conditions of the present human era. Postmodern teaching is also intellectually responsible; it takes account of the significant changes in intellectual direction in

the past half-century. Postmodern teaching is also ethical, since its theory works from the failures of western "principles" and their gameplaying.

In sum, again given the title of this paper, postmodern teaching in the practical world of classrooms means going beyond the myth of prediction. One of the practical results is to give up blaming both students and teachers for general educational failure. Students and their families are not blamed because they "do not fit schools;" there is no sense of "a fit." Teachers are not blamed because in spite of all of their best intentions and diligent efforts, students do not "do what they are supposed to." There is no one idea of what is "correct" to do in school. Finally, however, a result is a new kind of accountability. This is accountability not "to measure up," especially in individualistic terms of single teachers and their own students nor unitary classrooms. Rather, at the close, it is accountability for a new commitment to teaching and educational change. If there is no certainty or prediction to be discovered, then all that remains is present action. This, in a postmodern sense, is best exemplified in a cooperative commitment to make teaching count. It is to count, to matter, in a way that recognizes the non-certainty of the present yet understands that all we have is our work with each other--in schools and classrooms--to create a better world in which to live for more people.

Notes

1 While I am not an expert of Japanese education, what I have read suggests strong similarity between the desire for prediction and certainty in both contexts. An aside: the occasion of this paper is my fifth trip to Japan since 1968. On each of these visits I have been privileged to visit pottery towns and kilns and have added to a modest collection, primarily of ceremonial tea bowls.

2 I am preparing to undertake a major project in philosophy of teaching with the working title of "teaching conversations." Among papers about teaching that I have written over the past several years are these: Lynda Stone, "The Essentialist Tension in Reflective Teacher Education," in Ed., L. Valli, Reflective Teacher Education: Cases and Critiques (Albany: State University of New York Press, 1992) (in press); "Philosophy, Meaning Constructs and Teacher Theorizing," in Eds., E. W. Ross, J. Cornett, and G. McCutcheon, Teacher Personal Theorizing: Connecting Curriculum Practice, Theory and Research (Albany: State University of New York Press, 1992) (in press); and "Contingency: The `Constancy' of Teaching," Teachers College Record, Summer 1993 (in press).

3 Arata Isozaki, "Escaping the Cycle of Eternal Recurrence," New Perspectives Quarterly, 9 (2), p. 16 (1992).

4 Isozaki, "Escaping the Cycle of Eternal Recurrence," p. 16.

5 Isozaki, p. 17.

6 I posit a general meaning of "scientism," or "scientistic" to mean a reduction and reification of science and of its epistemological dominance to the exclusion of all other forms of knowing. See Joe Kincheloe, Teachers as Researchers: Qualitative Inquiry as a Path to Empowerment (London: The Falmer Press, 1991), p. 50, for a similar definition.

7 The work of Eliot Eisner and Lee Shulman that is referred to here proposes important reforms for teaching practice but to my mind does not go far enough in a postmodern direction.

8 Lynda Stone, "Contingency: The `Constancy' of Teaching" (in press).

9 See Thomas Popkewitz, A Political Sociology of Educational Reform (New York: Teachers College Press, 1991).

10 As all know, the western interest in epistemology began with the ancients in the Classical Period, continued through the Scholastic Period and on into Modernity, when it became the central focus.

11 For an application of the framework of "objectivist" and

"subjectivist" positions, see J. O. Urmson, "What Makes a Situation Aesthetic?" in Ed., W. Kennick, Art and Philosophy (New York: St. Martin's Press, [1957] 1964), pp. 552-564.

12 The aim of the discipline of psychology in the early part of the present century was precisely to reveal an analogy of the mental and physical natures.

13 Stephen Toulmin, Cosmopolis: The Hidden Agenda of Modernity (New York: The Free Press, 1990), pp. 109-110.

14 Toulmin, Cosmopolis, p. 81.

15 Toulmin, p. 104.

16 Ibid., p. 143.

17 Ibid., p. 141.

18 See D. C. Phillips, "The Demise of Positivism," in Philosophy, Science, and Social Inquiry (Oxford: Pergamon Press, 1987), pp. 36-45.

19 Phillips, "The New Philosophy of Science Run Rampant," in Philosophy, Science, and Social Inquiry, p. 99.

20 Kincheloe, Teachers as Researchers, p. 52.

21 Harvey Siegel recently reminded me that no one in philosophy believes any longer in simplistic notions of certainty. It was this reminder that led to development of weak and strong differentiations presented in this section.

22 See Lynda Stone, "Postmodern Social Construction: Initiating Dissonance," paper presented at the annual meeting of the American Educational Research Association, Chicago, 1991, to appear in slightly revised form in Studies in Philosophy and Education.

23 N. R. Hanson, Patterns of Discovery (Cambridge: Cambridge University Press, 1958).

24 The introduction of competing research programs from Imre Lakatos was a first step here. See Lakatos, "Falsification and the Methodology of Scientific Research Programs, in Eds., I. Lakatos and A. Musgrave, Criticism and the Growth of Knowledge (Cambridge: Cambridge University Press, 1970).

25 This well-known term in critical theory comes from Pierre Bourdieu.
Among his many works, see this particularly useful paper for educationists: Bourdieu, "The Three Forms of Theoretical Knowledge," Social Science Information, 12: 53-80 (1973).

26 Explicating the difference between a modernist and postmodernist particularity is very tricky and it relates to the relational situatedness that is implied in the strong position. Each particularity, moverover, is itself a multiciplicity of meanings (and meanings that are never fixed).

27 See Phillips, "The new Philosophy of Science Run Rampant," p. 80.

28 As is well-known, although stated a little differently, this was one of Kuhn's central points. See Kuhn, The Structure of Scientific Revolutions (2nd ed.) (Chicago: University of Chicago Press, 1970).

29 Isozaki, pp. 17-18.

30 See Jean Francois Lyotard, The Postmodern Condition: A Report on Knowledge, Trans. G. Bennington and B. Massumi (Minneapolis, University of Minnesota Press, 1984).

31 There appear to be two stands of postmodern theoretical development, one that is conservative and pro-traditional and the other than is radical. For an excellent definitional piece that relates modern and postmodern art and general intellectual life, see Andreas Hussen, "Mapping the Postmodern," in Ed., L. Nicholson, Feminism/Postmodernism (New York: Routledge, 1990), pp. 234-277.

32 One surely is to approach postmodern theorizing with a sense of humility, personal tenativeness, desire for play, and a particular warning against any reifying and reductive dogmatism.