Instrumentalism: Building Theory for Validity

Pratima Dutta

H650: Theories of Knowledge

Dr. Louise P. McCarty

December 13th, 2009
Proposing Change

The article “Roles for technology in the information-age paradigm of education: Learning Management Systems” is the fourth in the series of articles that discuss how due to the advent of the information-age paradigm, educational systems which are still grounded in the industrial-age sorting mechanism, need to undergo changes. The discussion began with the publication titled, “The AECT FutureMinds initiative: Transforming America’s school systems” by Charles M. Reigluth and Francis M. Duffy, which “examined the need for a change in our current school systems and described how the Association for Educational Communications and Technology (AECT) FutureMinds initiative can help U.S. state departments of education facilitate change in their school districts” (Hood, 2009, p. 51). The second article that followed the series, “The school system transformation (SST) protocol,” also by Charles M. Reigeluth and Francis M. Duffy, introduced how such a change initiative can be undertaken. It described the “design, development, and implementation of the methodology” (Duffy & Reigeluth, 2008; Hood, 2009, p. 51). The third in the series was geared towards directing this discussion on change towards the kind of change that school systems should aim for. The article, “The learner-centered paradigm of education”, introduced to its readers the need for a more learner-centered paradigm due to our society’s advent into the information-age and what a learner-centered education system should look like(Watson & Reigeluth, 2008). In this article, the authors identified certain features of a learner-centered paradigm such as project-based learning, cross-disciplinary approach to instruction, student-driven instruction, etc. The fourth and final article in the series, titled, “Roles for technology in the information-age paradigm of education: Learning Management Systems” (Reigleuth, et al., 2008), concluded the discussion by stating that in order to facilitate such a change and transition
In education and educational research, often times we have witnessed scholars and practitioners alike express discontent with the current state of our school-systems and consequently proceeded to offer suggestions that could possibly change the existing state of affairs. By indulging in a discussion such as the one mentioned above, educational scholars, based on their perceptions of the school system are creating new knowledge regarding our education systems and its needs. However, the question that one is faced with is — is this an appropriate manner in which our knowledge regarding an existing system is to be perpetuated? To answer the aforementioned question, we need to begin by briefly attempting to answer another question: What is knowledge?

**What is Knowledge?**

The question regarding the nature of knowledge has plagued philosophers since time immemorial. Classical philosophers such as Plato, Socrates, and Aristotle, have all debated the true nature of knowledge. Plato offers three analyses of knowledge:

- Knowledge and perception are the same
- True belief is knowledge
True belief accompanied by a rational account is knowledge (Plato, 2008).

Socrates believed that there is no such thing as absolute knowledge and absolute truth; that knowledge in itself is attainable and the most that one can do is pursue knowledge without expecting to attain it in its entirety. The reason why knowledge is unattainable, according to Socrates, is because knowledge is innate and is gradually revealed to us through our experiences (Plato, 2005). Aristotle, on the other hand, believed that knowledge should be pursued for its own sake and not necessarily its utility (Hooker, 1996). Several philosophers following Plato, Socrates, and Aristotle presented their own definition regarding the theory of knowledge. Philosophers who have pondered on the nature of knowledge, up until the advent of Kant’s Copernican Revolution, followed closely on the platonic and Aristotelian definitions of knowledge. Augustine notion of knowledge was premised on the belief that because humans were incapable of learning anything bad, therefore all knowledge, learned by mankind was essentially good("The Philosophy of St. Augustine," 2003). Aquinas’ and Descartes’ definition of the nature of knowledge was closely modeled on the Platonic and Socratic notion of knowledge. That being, Aquinas too believed that knowledge was perception; however, he deviated slightly from Plato by stating that that knowledge was indeed perception, but perception with reasoning (D'Arcy, 1928). Descartes was closer to the Socratic conception of knowledge where he believed that the mind, due to its natural curiosity, always seeks knowledge (Descartes, 1984).

It was not until the advent of Kant’s Copernican Revolution that philosophical debates regarding the nature of knowledge started to adopt a more transcendental veneer. In the Kantian
definition of knowledge, knowledge was to be defined and created within the boundaries of experience and not in the realm of metaphysics (McCormick, 2005). Charles Sanders Peirce adopted Kant’s notion of transcendental knowledge and introduced pragmatism where knowledge is born through criticism, debate, and experimentation (Carpenter, 1941).

As we can see, the notion of knowledge and how it is to be created or is created has surely transformed through the ages vis-à-vis, from classical to modern times. The brief parley presented here on the history of how knowledge has been defined by philosophers in the past leads one to question the purpose of this activity. As mentioned earlier, we questioned whether the manner in which Charles M. Reigeluth and colleagues formulated the notion that existing schools systems need to adopt a more learner-centered paradigm of education due to the advent of the information-age can be considered an appropriate method of knowledge creation. To address this notion, we started with reviewing the nature of knowledge as proposed by several philosophers and having developed an understanding of how knowledge has been defined in the past, we will now proceed to analyze how knowledge should be created.

In order to understand how knowledge is created, we will begin with the notion of Instrumentalism, attempt to justify whether the changes proposed by the Reigeluth et al. follow the instrumentalist notion of knowledge formation, and finally conclude with presenting arguments proposed by other philosophers against instrumentalism in an attempt to verify the legitimacy of proposed ideas.

**Instrumentalism**
The object of knowledge is constructed of, as a result of, as a function of, the transaction: “Any instrument which is to operate effectively must take into account of what exists....But ‘taking account of’ ...is something quite different from literal conformity to what is already in being” (Dewey, 1929, p. 165). This also means that we do not construct the objects of knowledge out of the blue. They are not fantasies, things made up only in our minds. Just as we can only make effective instruments out of raw materials, the objects of knowledge have to be constructed out of available “materials”(Biesta & Burbules, 2003).

**Scientific Knowledge vs. Everyday Knowledge and Education**

Dewey’s notion of instrumentalism grew out of his dissatisfaction with “contemporary philosophical ideas as they relied on traditional dualistic modes of thinking and a mechanistic model of science” (McCarty). Dewey argued that the manner in which scientific knowledge and everyday knowledge is created, is one and the same (Biesta & Burbules, 2003). The only difference between scientific knowledge and everyday knowledge is that of the “physical object”, in other words, a tangible or observable phenomenon, which makes scientific knowledge more qualifiable and comprehensive. This, however, does not mean that everyday knowledge that cannot be qualified and grouped in its neat little homogenous packages makes everyday knowledge less untrue. Dewey states, that just like every-day knowledge, that is constructed based on observations, scientific knowledge is constructed as well; therefore, rendering both provable or un-provable based on empirical data.
Dewey’s notion of knowledge construction in the realm of education becomes more relevant because of the constant disregard directed towards educational research due to the fact that it is not as scientific as other disciplines (Levit, 1968). Organized mass education, is after all a social construct; a construct of a “civilized” society, the industrialized society and most importantly, a construct of the postmodern world. Researching education is therefore not the same as researching a natural phenomenon, such as determining the growth rate of a particular species of flora in the Amazonian rain forest. Education systems were designed by societies and actors within those societies — actors, who are not removed from the socio political or cultural constructs of their environment. Therefore, approaching a study in an environment rampant with layers of constructs with a scientific approach, attempting to determine the effect of one variable on another, in other words, the objective scientific empiricism, will simply not offer a complete picture.

**Constructing Knowledge**

Having established that scientific knowledge creation is not very removed from the manner in which we create our everyday knowledge, he goes on to ratify his claim through the elaboration of a process in which knowledge is created.

In Dewey’s "Analysis of a complete act of thought", John Dewey articulates the manner in which human beings while interacting with their environment create theory that seeks to explain their interaction and influence decisions regarding their environment. Dewey states that in order to create theory, we follow five distinct steps:

- a felt difficulty
• it's location and definition

• suggestion of possible solution

• development by reasoning of the bearings of the suggestion

• further observation and experiment leading to its acceptance or rejection: that is the conclusion of belief or disbelief (Dewey, 1910)

The process mentioned above is followed by all when creating either scientific or everyday knowledge. And the reason why such a process is followed by all is because, according to Dewey’s instrumentalist ideas, the most seminal aspect of man’s existence is his interaction with his environment and his attempts to manipulate the environment in order to control it. This seminal purpose drives man’s quest for knowledge. The purpose of gaining control over his environment is acquired through man’s knowledge of his environment. And this knowledge is created through the process of thinking. Therefore, the act of thinking then becomes crucial or instrumental in transforming experience into ideas (Dewey, 1910; McCarty). However, ideas or knowledge gained just through the thinking process are fallible; they have to be tested and consequently confirmed or rejected.

In light of the changes proposed by Reigeluth et al., the process adopted by him and his colleagues follow a similar instrumentalist approach where Dewey’s aforementioned logical steps in the process of inquiry were followed; vis-à-vis, identifying the problem or the difficulty; followed by the suggestion of a possible solution; and finally, offering reasons supporting the
possible solution. In order for the possible knowledge to become the truth, the proposed changes have to be ratified by objective observations.

**Anti-Instrumentalism**

Needless to say, it is not uncalled for to mention that there may be schools of thought that oppose the instrumentalist premise of creating knowledge. One such school of thought is referred to as anti-instrumentalism and was first introduced by Karl Popper. Popper’s case against instrumentalism (or his defense of methodological realism) is by far the strongest as he rests on the premise that for a theory to “scientific” it should be *falsifiable*. If theories are conjectured based on observations, proving them to be true or not becomes a subjective matter because due to the nature of the theory all evidence related to the theory can be manipulated to support or refute. However, in Popper’s discussions on the growth of human knowledge, the manner in which he describes knowledge is formed, lends support to the instrumentalist notions of the formation of knowledge. (Gonzalez, 2004)

Popper also contends that instrumentalism is not in reality removed from conventionalism (in his critique of Duhem’s conventionalism). He states that “...if a theory does not describe reality, in other words, if it is convention, then simplicity becomes the differentiating characteristic between theories...[i]nstrumentalist philosophers all assert that the explanation is not the aim of physical science, since physical science cannot discover the hidden essence of things” (Gonzalez, 2004, p. 40). Therefore, Popper claims that if theories cannot describe essences then they cannot describe anything and therefore as a consequence are nothing but simply an instrument.
Another major critique of Dewey’s instrumentalism stems from the discussion on the demise of liberal learning in our current education systems. Michael Oakeshott in his commentary on liberal learning states that liberal learning is “learning to respond to the invitations of the great intellectual adventures in which human beings have come to display their various understanding of the world and themselves” (Oakeshott, 2001, p. 22). Humanities, which is a major component of liberal learning, stays uncontested.

Languages recognized, not as the means of contemporary communications but as investments in thought and records of perceptions and analogical understandings; literatures recognized as the contemplative exploration of beliefs, emotions, human characters and relationships in imagines situations, liberated from confused cliché-ridden, generalized conditions of commonplace life and constituting a world of ideal human expressions inviting neither approval or disapproval but the exact attention and understanding of those who read; histories recognized, not as accounts of the past focused upon our contemporary selves purporting to tell us how we have become what we are and containing messages of warning or encouragement, but as stories in human actions and utterances are rescued from mystery and made intelligible in terms of their contingent relationships; and philosophy, the reflective undertaking in which every purported achievement of human understanding becomes a subject of an inquiry into its conditions” (Oakeshott, 2001, p. 23).

The problem begins, as Oakeshott claims when the Social Sciences becomes a part of liberal learning. And the problem is not with social sciences or with the disciplines it comprises of, such
sociology, anthropology, psychology, etc, rather the problem lies with the very use of the term “sciences” along with the term “social”. Oakeshott claims that “in putting on the mask of science,” some of these departments of learning have “succeeded to the temptation to understand and to value themselves in terms of the use that may be made of the conclusions of their inquiries” (Oakeshott, 2001, p. 26). Such confusion, Oakeshott notes, originates from the basic premise that knowledge that is to be created can only be confirmed as true or not is based on empirical (observable) data. Needless to mention, this is a direct reference to instrumentalism which states that for knowledge to be considered true it needs to be validated and supported with further observation and experimentation leading to its acceptance or rejection: that is the conclusion of belief or disbelief. Oakeshott claims that such assumption proves detrimental to various social sciences due to the very nature of social science, vis-à-vis, the “social” in the social sciences.

Based on the above premise, therefore, one can state that the theory proposed by Reigeluth et al should be simply accepted as truth and implemented in schools across the nation because attempting to prove it or disprove it would be a futile effort considering that attempt to validate it will be taking place in the realm of the social sciences. However, one needs to also consider that no matter how inclusive the information acquired to ratify the theory maybe, it is still better than no information at all.
References


McCarty, L. P. Dewey's Instrumentalism (Class Hand-out ed.).


NOTES

---

I find it very strange that I am able to use Dewey’s notion of knowledge to justify the unscientific nature of educational research especially considering how pragmatism (almost empiricism) guides Dewey’s notion of creating and proving the validity of assumption.
I will not be discussing Dewey’s notion of education because it is a little beyond the scope of this current assignment; although, Dewey’s definition of education makes for a perfect argument in support of the changes proposed by Reigeluth et al.