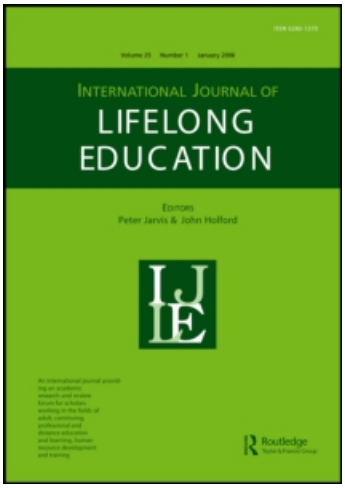

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The concept of experiential learning and John Dewey's theory of reflective thought and action

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The conception of experiential learning is an established approach in the tradition of adult education theory. David Kolb's four-stage model of experiential learning is a fundamental presentation of the approach. In his work *Experiential Learning*, Kolb states that John Dewey, Kurt Lewin and Jean Piaget are the founders of the approach. The article discusses Kolb's eclectic method of constructing his model of experiential learning. It studies how Kolb introduces and uses the Lewinian tradition of action research and the work of John Dewey to substantiate his model. It is concluded that Kolb generalizes a historically very specific and unilateral mode of experience – feedback session in T-group training – into a general model of learning. Kolb's interpretation of John Dewey's ideas is compared to Dewey's concepts of reflective thought and action. It is concluded that Kolb gives an inadequate interpretation of Dewey's thought and that the very concept of immediate, concrete experience proposed by the experiential learning approach is epistemologically problematic. The theory historical approach of the article discusses both substantial questions related to experiential learning and the way concepts are appropriated, developed and used within adult education theory.

Introduction

Experiential learning is an important approach within the theoretical tradition of adult education in Europe, North America and Australia (see e.g. Boud *et al*. 1985; Boud and Miller 1996; Weil and McGill 1989). The approach, or movement, has a special nature as a cognitive enterprise and it can also be seen as a kind of ideology needed to confront the diverse challenges of adult education. Its theoretical frame has diverse sources of inspiration: the T-group movement, the learning style technology, humanistic psychology and critical social theory. It has been influential in the literature of management training as well as adult education *per se*. Without doubt, the two concepts that characterize the approach most clearly are experience and reflection.

In this paper, I shall evaluate the concept of experience, primarily from an epistemological point of view, that is, as a representation of learning and the process of gaining new knowledge. I will argue that in the light of the philosophical studies on the ways of gaining new knowledge of the world, the model of experiential learning is inadequate. Through its humanistic connection, the concept of experience also has an ideological function: faith in an individual's innate capacity to grow and learn. This is what makes it particularly attractive for adult education theorists and for the idea of life-long learning. The humanistic connection is also epistemologically significant, since it strengthens the methodological individualism of experiential learning. To fully evaluate

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the legacy of the experiential learning approach, the concept of reflection and its roots in critical theory should also be analysed. In this paper, I shall focus on the concept of experience. These two concepts are, however, interrelated. It is experience that is reflected. If the conception of experience is problematic, so is the possibility of its reflection.

David Kolb's book *Experiential Learning* (1984) is perhaps the best known presentation of the approach. Kolb's four-stage model of learning elaborated in the book is regarded as classical and as a foundation for experiential learning. It is used routinely as a source in the literature of the field and in the theses of adult education students. It has been an important starting point for several attempts to develop adult education theory (Jarvis 1987; Weil and McGill 1989). It has been used as a foundation for formulating a theory of organizational learning (Dixon 1994). It also has been widely used in management consultation, leadership training and in research on cognitive processing styles. There are, therefore, good grounds for studying carefully the theoretical foundations of Kolb's work. That will help in a more general way regarding some of the basic tenets of experiential learning.

Within the scope of an article, it is impossible to discuss all the various themes and concepts presented by Kolb in his book. Therefore, I shall follow the following procedure. First, I shall discuss Kolb's method of constructing the model. Second, I shall study how Kolb derives his model, which he claims to a Lewinian model, from the tradition of Lewinian action research and small group research. Third, I will study how Kolb introduces and uses the work of John Dewey to substantiate his own model. I compare this interpretation to the recent interpretations of Dewey specialists in philosophy concerning Dewey's concept of experience and reflective thought (e.g. Burke 1994; Campbell 1995; Welschman 1995) and to the idea based on my own reading of Dewey's theory. This critical method will elucidate both the substantial questions related to experiential learning and the way Kolb uses historical sources in his book. In more general terms, it also deals with the problem of how concepts are appropriated, developed and used within adult education theory.

Kolb's eclectic method and its consequences

Evaluation of Kolb's model and book is a problematic task. The book represents a special genre of writing, which could be characterized as consultancy literature. It was originally formulated to state arguments for the utility of the sociotechnology previously developed by the author in the 1960s: the Learning Style Inventory (LSI). The first version of the model was presented to substantiate the use of the inventory in a book of exercises in *Organizational Psychology* (Kolb *et al.* 1971: 28). The main application of the model was to manage and gain control of individual learning by inventing one's learning style (Kolb 1976a, 1976b). By recognizing her or his own learning style profile and goals, an individual is meant 'to choose which set of learning abilities he will bring to bear in any specific learning situation'. In *Experiential Learning* (1984) Kolb tries to elaborate further both the foundations of the model and the extended societal application of the Learning Style Inventory. Because the author is the developer of this technology, the book can also be seen as a marketing promotion.

The social technological and practical background is reflected in the way theorizing proceeds in the book. The substantiation of the model combines widely different

ingredients: ideas, terms and conceptions from many sources. The concepts are defined briefly and without adequate reference to the background literature. As a result, these concepts often remain unclear and open to many interpretations. On the other hand, the book has a programmatic nature. It claims to present solutions to many burning problems of adult education and working life in western, postmodern society.

Kolb starts his book by defining the historical roots of experiential learning. According to him, the founding fathers and developers of the conceptions are John Dewey, Kurt Lewin and Jean Piaget. Kolb presents in a graphical form the conceptions of learning of these three theoreticians (Kolb 1984: 22, 24, 25). After presenting the three founding fathers, Kolb states that the approach was further developed by therapeutic psychologies based on psychoanalysis (Carl Jung, Erik Erikson) and humanistic psychology (Carl Rogers and Abraham Maslow) as well as by radical educationists such as Paulo Freire and Ivan Illich. He also utilizes the results of neurophysiology which report the functional differences between the right and left hemispheres of the human cortex and to the theory of world models presented by the American philosopher Stephen Pepper. He further indicates (1984: 17) that techniques and methods such as those employed in T-groups and action research have contributed to the conception of experiential learning. Kolb says that he does not want to develop an alternative theory of learning, 'but rather to suggest through experiential learning theory a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior' (1984: 21).

This procedure and method can be called eclectic. Kolb unites terms and concepts, extracting them from their idea-historical contexts and purposes and puts them to serve the motives of his own presentation. As a result, theoreticians with quite different backgrounds, motives and incompatible conceptions can be used as founders and 'supporters' of experiential learning. This happens when Kolb lumps together Carl Jung, Kurt Lewin and John Dewey with humanistic psychologists, as founders and developers of experiential learning. One cannot help concluding that Kolb's motive is not critical evaluation or interdisciplinarity but an attempt to construct an 'attractive' collection of ideas that can be advocated as a solution to the social problems of our time and to substantiate the usefulness of his learning style inventory.

Kolb uses in the development of his conception the theory of world hypotheses of the American philosopher Stephen Pepper. In his theory Pepper suggests that there are four basically different hypotheses of world, four ways of conceptualizing the reality: formism, mechanism, contextualism and organism (Pepper 1972). Kolb fuses these hypotheses to his model and combines them with those findings of brain physiology that indicate functional differences between the right and the left hemispheres of the human cortex. Broad historical ways of conceptualizing the world, that is, a history of ideas, is combined with the physiology of the nervous system. Pepper rejects such a mixing of ingredients. Two central principles of his method are 'Eclecticism is confusing' (104–114) and 'Concepts which have lost their contact to their root metaphors are empty abstractions' (113–114).

Pepper evaluates the possibilities of the eclectic method as follows (1972: 106):

> It is a tempting notion, that perhaps a world theory more adequate than any other... might be developed through the selection of what is best in each of them and organizing the results with a synthesis set of categories.... It is the eclectic method. Our contention is, that this method is mistaken in principle in that it adds no factual content and confuses the structures of fact which are clearly spread out

in the pure root-metaphor theories; in two words, that is almost inevitably sterile and confusing.

Pepper argues that the concepts – when taken out of their theoretical context, the context where they come from – change into 'thin, little more than names with a cosmic glow about them' (1972: 113). The concepts and terms outside their theoretical context do not have intrinsic or ultimate value in themselves. It is a paradox that Kolb uses Pepper's basic metaphors exactly in a way that is contrary to Pepper's methodology, by taking them out of their context and by fusing them as auxiliary terms into his 'holistic, integrative perspective'. Kolb does not use Pepper's root metaphors to analyse the background presuppositions of his own synthesis.

The background of Kolb's concept of experience: the four steps

Kolb's theory is best known through the four-stage model of experiential learning (Kolb *et al*. 1971: 28, see figure 1). In 1976, he calls it 'the Lewinian Experiential Learning

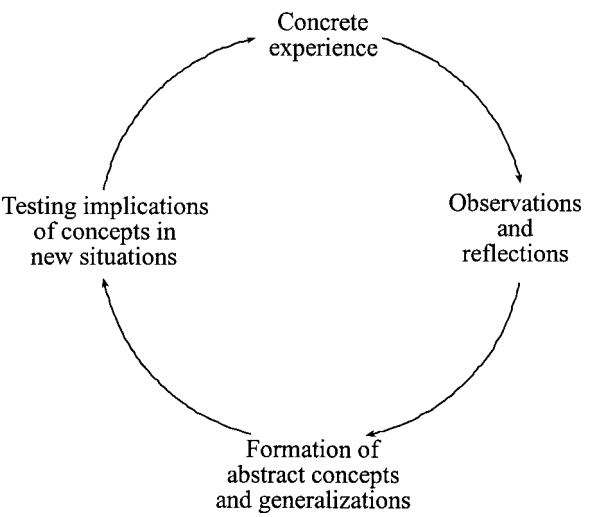

Figure 1. The Lewinian experiential learning model according to Kolb (1984: 21).

Model' and 'The Lewinian model of Action Research and Laboratory Training' (Kolb 1984: 21). This model is generally known as Kolb's model, and Kolb constructs his own theory with it as a starting point.

It is misleading, however, to call this model a Lewinian model. In his presentation Kolb does not refer to Lewin. Instead he uses, as his source, a report written by Ronald Lippit on the well known training and development enterprise organized by Lewin and his colleagues, in 1946, in the Research Center for Group Dynamics in the Massachusetts Institute of Technology (MIT). The theme and substance of the training intervention comprised an analysis and solution of the racial prejudices and conflicts in the State of Connecticut. Lippit's book (1949) is one of the finest and most careful reports ever written about an educational enterprise oriented to effect a change in the community life. However, Kolb uses it very selectively. He picks up from the variety of content and methods of the seminar only one aspect: direct feedback related to the group dynamics

after the group sessions. The recollections of the participants in the feedback situation can be regarded as a 'here and now experience' to be analysed. It was these feedback sessions that, later on, developed into the heart of the laboratory and T-group training movement. It is this specific aspect of the seminar that Kolb picks up to formulate the basis of his concept of experience. He leaves out other, more important working methods without proper attention.

The basic idea of the seminar followed the stages of Lewin's action research: diagnosing problems, finding solutions to them, exercising the solutions and planning carefully the actions to be taken 'back home'. The group dynamics exercises comprised a method in the third phase of Lewin's action research. The reflection on group experiences played a minor role in the seminar, as can be seen in table 1 where the time

Table 1. Time distribution between the phases of the problem solving process in Benne's and Lippit's groups in the 1946 seminar (Lippit 1949: 169)

	Benne Group %	Lippit Group %
Defining the problem and getting facts about it	26	35
Formulating action possibilities in the problem situation	7	16
Practising human relation skills needed to carry out problem solutions	42	24
Formulating general principles of action	3	3
Planning specific steps of back-home action	21	18
Group self-evaluation of its own problem solving activity	1	4

spans for the different parts of the seminar in the groups led by Kenneth Benne and Ronald Lippit are presented.

The table also shows the differences between the groups. As a matter of fact, the nature of Kolb's view of the 'here and now' immediate experience becomes visible, if we study how it was developed in relation to the historical transition from Lewin's community and action oriented seminar to the T-group movement. I can see four steps in this evolution. These steps roughly correspond to the important developments in the history of the T-group training and research practice (see Hirsch 1987).

(1) *The shared societal object of the group is eliminated and the 'group interaction as such' becomes the object of analysis*

The objects of study in the 1946 seminar were the racial prejudices and social problems in the State of Connecticut. In the T-groups, this kind of societal, 'outside' object was replaced by the reflection of the interaction of the group members. In the 1946 seminar, the participants, community activists and leaders, had plenty of diverse knowledge and experience of racial problems and of attempts and ways of trying to solve them. This knowledge and experience was widely used in the 1946 seminar. It was, of course, not anything like 'here and now' experience. It comprised accumulated knowledge of and insight into the communities, community programmes as well as conditions and possibilities of various kinds of action. The selection of one mode of action of the seminar,

the immediate recollection and analysis of what had happened in group sessions of the day, therefore, replaced the wide selection of working methods related to the solution of community problems. Kolb characterized this substitution in his analysis of 'the struggle of "here and now" and "there and then" knowledge'. Kolb cites Kenneth Benne (Kolb 1984: 10):

> There resulted a competition between here-and-now happenings, which of necessity focused on the personal, interpersonal and group levels; and discussing the outside case materials. This sometimes resulted in the rejection of any serious consideration of the observer's report of behavioral data. More often it led eventually to rejection of outside problems as less involving and fascinating.

The National Training Laboratories were founded in 1947 to carry on the work started in the Massachusetts Institute of Technology. Hirsch shows how the feedback sessions of the 1946 seminar were the invention that formed the basis for the development of the T-group method (1987: 20):

> The feedback data about interaction in the group provide rich learning experiences, presenting T-groups as a new and valuable tool in training and education.

Robert Farr presents an explanation of this substitution described above that took place in small group research and training. The small group research at the National Training Laboratories – the most important centre for the development of the T-group method – was mainly funded by the Office of Naval Research of the United States' Army. The office was interested in how autonomous small groups behave in circumstances of total isolation from the rest of the world (1996: 153)

> It was not clear at the time whether these small groups would be in midget submarines or space craft or just wintering over time in Antarctica during the international geophysical war.

Anyhow, in this context, the regularities of behaviour of groups encapsulated in a laboratory was relevant knowledge.

(2) *The collection and analysis of the data by the researchers is replaced by the discussion of the recollections of the group members*

In Lewin's laboratory, the study of group behaviour was based on the data collected by the researchers. In each group, there was an observer who wrote down her observations on a form designed by Lewin's research group. It directed observation to the problems that were interesting to the group such as leadership, competition, orientation to action etc. The systematic and coordinated way of collecting data made the data comparable and analysable. In the T-group and laboratory training, this systematic collection of data based on hypothesis was replaced by the recollections of the participants of the day's group meetings. This replacement is in a curious way visible in Kolb's characterization of the relationship of the first and second phases of his learning model (1986: 21):

> The process that begins with here-and-now experience … followed by collection of data and observations about that experience.

If the recollections and interpretations about a group meeting by the group members are discussed, how will it be possible to acquire further data? What does it mean to observe the 'here and now experience'? Is it the same as introspection?

(3) *Individualization of experience*

The 1946 seminar followed roughly the idea of action research as introduced by Lewin (1957): define the problem and make a diagnosis, draw up a total plan for solving the problem and plan the first step to implement the total plan. The versatile knowledge and experience of the participating community leaders, the outside specialists and the researchers of Lewin's group were widely used. The group planned action programmes for solving racial problems in their respective communities. The interviews conducted after the seminar showed that the course, indeed, gave rise to new networks of collaboration and projects in the communities (Lippit 1949: 171).

In the T-group training individuals are supposed to learn about the interaction in-groups, that is, develop individual 'human relations skills'. Accordingly, the creation of new joint activities and new ways of working, as well as networks of collaboration, is missing in the concept of experiential learning.

(4) *The concept of experience is tied to humanistic anthropology and values*

The additional qualities given to the concept of experience, such as 'personal', or 'authentic' are based on a special social ontology and value system of humanistic psychology and existential-phenomenological conception of man. Hence, the concept of 'immediate', 'here and now', having a practical and technical background, can be given a philosophical meaning like 'existential'. Humanistic conceptions represent normative and philosophical arguments for methodological individualism and the 'subjective personal' nature of experience. The influence of these theories is not manifest in Kolb's work. It is more visible in the rhetorical value commitments than in the learning model itself. Kolb states that humanistic values offer 'new hope-filled ideas for the conduct of human relationships and the management of organizations' (Kolb 1984: 11). The humanistic and person-centred orientation grew prominent in the T-group training movement during the 1960s (Hirsch 1987: 65–69).

Understanding humanistic and Jungian conceptions of experience would require a separate theory-historical analysis. Suffice to say, in this context, that the 'peak experiences' revealing the biological true nature of man proposed by Abraham Maslow are religious experiences (Maslow 1970). To Jung, important experiences were based on connection to the collective unconscious, the archetypal primordial images from pagan times or to the species-historical primitive. Also Jung saw the psychological experience as an alternative to institutionalized religion (Jung 1933: 233):

> the psyche becomes something in its own right, which cannot be dealt with measures of the Church alone. It is for this reason that we need a psychology founded on experience and not upon faith or the postulates of any philosophical system.

To me, both of the approaches are, idea-historically, blends of romantic biologism and an attempt to create a new kind of world view or lay religion. That is why they can serve

as a specifically ideological ingredient in the approach of experiential learning in adult education. To analyse the role of humanistic conceptions of experience in learning, one should analyse in what sense these kinds of 'peak' or mystical experiences – if they exist – could be the basis for learning and reflection.

The four steps characterized above in the elaboration of the concept of 'immediate experience' imply a radical impoverishment of the concept of experience. This kind of experience is based on the generalization of a very specific mode of action, a feedback session, which developed into a key procedure in the T-group training – combined with a highly individualistic and normative humanistic-existential anthropology. The rich variety and modes of human experience characteristic of various human activities are replaced by a narrow and particularistic conception of experience.

The dynamics of the model of experiential learning

Kolb states that each of the phases of the model is a 'different form of adaptation to reality' or a 'learning mode' (Kolb *et al*. 1971: 28). A separate individual ability corresponds to every phase of the model (1984: 30):

> Learners, if they are to be effective, need four different kinds of abilities- *concrete experience abilities* (CE), *reflective observation abilities* (RO), *abstract conceptualizing abilities* (AC) and *active experimentation abilities* (AE). That is they must be able to involve themselves fully, openly and without bias in new experiences (CE). They must be able to reflect on and observe their experiences from many perspectives (RO). They must be able to create concepts that integrate their observations into logically sound theories (AC) and they must be able to use these theories to make decisions and solve problems (AE).

In the next section I shall return to the crucial point of the model, the theoretical and epistemological inadequacy of the concept of immediate personal experience which is meant to form the basis of reflection and of the whole model. The quotation above expresses well the eclectic quality of the model. The phases remain separate. They do not connect to each other in any organic or necessary way. Kolb does not present any concept that would connect the phases to each other. Rather he collects into his model historically and theoretically distinct ingredients. Kolb continuously speaks about 'dialectical tension' between experiential and conceptual. However, he resolves the tension simply by taking both as a separate phase to his model. There is surely no dialectics in this. Dialectical logic would show how these two are indispensably related to each other and are determined through each other. It would look for the origin of their interrelatedness. The separateness of the phases and corresponding 'modes of learning' are also based on the fact that the model is constructed to substantiate the validity of learning style inventory. The construction of the distinct styles makes it necessary to postulate distinct modes of adaptation. In this way, the technological starting point partly dictates the mode and content of the 'theoretical' model.

John Dewey resolved the relationship and tension between experience and reflection by taking, as the basic point of departure, practical, material life activity. He regarded non-reflective experience based on habits as a dominant form of experience. The reflective experience, mediated by intelligence and knowledge grows out from the inadequacy and contradictions of the habitual experience and ways of action. For Dewey, the basis of, and reason for reflection was the necessity of solving problems faced in habitual ways of action. He also shows that hypotheses generated by reflection can

only be tested in experimental activity, which might solve the problem that elicited the process of reflection. In contrast to Kolb's model in Dewey's conception (see figure 3), every phase is necessarily interconnected. It is the problems and dynamics of life activity that are the common denominator in both habitual and reflective experience for Dewey, and which made him a philosophical pragmatist.

The problem of induction and theory ladenness of observations

In his summary, Kolb presents a working definition of learning (Kolb 1984: 38):

> Learning is a process whereby knowledge is created through the transformation of experience.

Accordingly, the core of his model of experiential learning is 'a simple description of a learning cycle – how experience is translated into concepts, which in turn are used as guides in the choice of new experiences' (Kolb 1976: 21). This characterization resembles the empiricist theory of scientific knowledge proposed by the logical empiricists in the 1930–1950s. This theory was a prevailing conception of the origins of knowledge until recently. Since then, it has been criticized in various ways in the philosophy of science. This epistemological criticism and discussion concerning man's possibility of obtaining new knowledge about the world, is the most relevant issue for any theory of experience.

According to the empiricist theory of science, true knowledge is based on perceptions. With his senses an unprejudiced observer can make unbiased perceptions of reality. These can be presented in the form of elementary observation statements; sometimes called 'protocol' statements. These statements form a foundation for true knowledge. Following the rules of formal logic, it is possible to infer laws and theories from these statements (induction). From these laws and theories, in turn, one can infer new propositions and forecasts concerning reality (deduction) that can be tested empirically, that is, to show their correspondence with unbiased observations. Although Kolb speaks about observation and reflection instead of observation and induction, the basic problems of his model remain the same.

Whereas empiricist philosophy regards observations of reality and nature as a starting point of knowledge, Kolb postulates observation of experience as a starting point. This resembles the method of introspection of idealist psychology in the 1800s, which made the inner states of mind an object of observation and reporting. Experience can be understood either as a stream of consciousness or subjective recollections of an interaction situation (compare T-group). The experiential model replaces the naive epistemological realism of empiricism with an individualist and subjectivist stance. What unites the two is the confidence in induction.

The conception of the formation of knowledge discussed above was denounced by several prominent philosophers in the 1960s and the 1970s (see, for example, Hanson 1965). They showed that the idea of objective, unbiased observation of facts was not tenable. They showed that observations were necessarily guided and laden by prior conceptualizations and cultural expectations. Ludwig Wittgenstein in his Philosophical Investigations describes an idea as follows (1997: 450)

> it is like a pair of glasses on our nose through which we see whatever we look at.

This was called the principle of theory-ladenness. It was substantiated by the results of comparative cultural psychology and the psychology of perception. People from

different cultures see the same perceptual stimulus (for example a three-dimensional figure) in different ways. The picture projected on the retina does not explain the content of observation. John Dewey formulated the cultural mediatedness of observations already in 1925 in his book *Experience and Nature* as follows (LW 1: 40):

> Experience is already overlaid and saturated with the products of the reflection of past generations and by-gone ages. It is filled with interpretations, classifications, due to sophisticated thought, which have become incorporated into what seems to be fresh naïve empirical material. It would take more wisdom than is possessed by the wisest historical scholar to track all of these absorbed borrowings to their original sources.

Dewey considers that one of the purposes of reflection is to be conscious of the layers of cultures weaved in the observations. They can be prejudices and carriers of the circumstances of past time, therefore being an obstacle for sensible action in the present circumstances. Once made visible and critically transformed by reflection, they can turn into means of enriching thought and action. In the 1990s, philosophers have stressed that observation is not only laden with theory but also mediated by instruments and practices. A scientific observation, as an Australian philosopher of science Allan Chalmers states, is a practical accomplishment. It is a result of getting a whole arsenal of instruments to work (Chalmers 1990). It is laden with local cultural traditions and resources (Barnes *et al.* 1996). Any scientific observation already includes an interpretation whether the organization of observation and experimentation was satisfactory or not.

Chalmers elucidates the principle of theory-ladenness using the following example: What do a philosopher and a biologist see on the screen of a microscope? Where an experienced microscopist sees a cell dividing, a philosopher can see nothing but a 'nebulous milky substance' (1990: 42). Had a group of philosophers or adult educators collected beside the microscope, they would not have been able to make any kind of sensible or usable generalization. Similarly helpless would be the philosopher in the control room of a paper machine, beside the concrete casting of a cellar, or in the inspection of the errors of a firm's accounts. Observation necessarily takes place in a certain activity; context or thought-community, using the concepts, instruments and conventions historically developed in that context. They steer the observations, and with them the observer interprets and generalizes what is seen and regarded as problematic and important.

Philosopher Michael Polanyi characterized the communal origin and theoretical and historical mediatedness of observations by analysing how students of medicine learn to interpret X-ray pictures (Polanyi 1964: 101). In the beginning, the students see practically nothing in the pictures. It is only after months of practising, discussions and analysis of hundreds of pictures together with an experienced analyst that the capability of seeing and interpreting the pictures develops. Therefore, there is every reason to acknowledge that concepts and hypotheses based on them precede adequate observations. Accordingly, the reinterpretation of conceptions and practices is an essential part of reinterpretation of observations and learning. Learning can, therefore, be regarded as a relationship between culturally appropriated conceptions, ways of action and hypothesis and empirically new ways, deviating from previous and problematic elements in practical activity.

In the light of our knowledge on observation and knowledge formation it is highly unlikely that an individual could, as Kolb stated above, 'be able to involve themselves

fully, openly and without bias in new experiences' let alone draw any generalizations from such experiences. Karl Popper calls the assertion of such a possibility absurd (1981: 72). A student of Dewey's logic, Tom Burke, crystallizes Dewey's conception of the issue (1994: 43):

> the problem is not only how to formulate hypotheses on the basis of given data ... but how to reformulate hypotheses, based on the given data and on prior hypotheses that suggested how and why to gather those particular data in the first place.

Dewey, therefore, asserts that hypotheses are drawn from observations, from the hypothesis and conceptions that directed the observations and, if necessary, from the totally new cultural resources and conceptions that are mobilized to interpret the observation data.

A solution to this problem was proposed by the founder of pragmatism Charles Peirce. He analysed the difference between induction and a hypothesis as forms of logical inference (1992/1878). Induction leads to the recognition of a fact on the basis of the similarity of facts. Hypothesis, instead, often suggests something that cannot be inferred from immediate perception at all. Peirce resumes (ibid.: 194) 'Induction classifies, hypothesis explains'. Peirce calls the inference that proceeds through hypotheses an abduction. Dewey further elaborated this logic and applied it to social practice.

Dewey's naturalistic model of reflective thought and action

Having presented the 'Lewinian model', Kolb introduces briefly, with a few sentences, John Dewey's model of experiential learning (1984: 22, see figure 2). He states that it

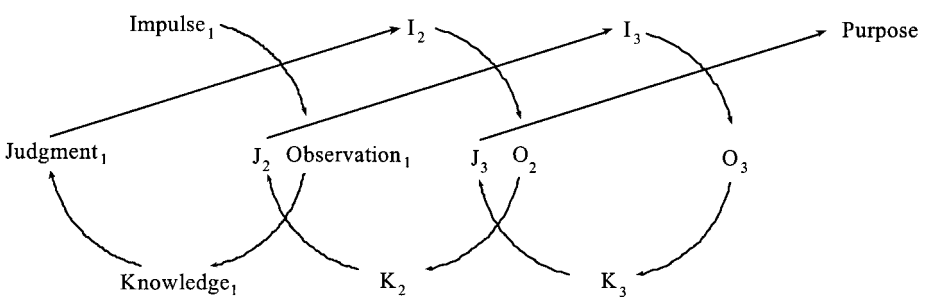

Figure 2. John Dewey's concept of experiential learning according to Kolb (1984: 23).

is remarkably similar to the Lewinian model. According to him, Dewey studies in his model 'how learning transforms the impulses, feelings and desires of concrete experience into higher-order, purposeful action' (op. cit.: 22). This interpretation is based on a lengthy citation that the author has taken from Dewey's small book *Experience and Education* (1938). This book is based on a series of lectures that Dewey gave on the state of the school, in 1937. The quotation is the only reference to the work of Dewey in the presentation. This fragment of text is selected because it supports the author's agenda. The text from which the citation is taken deals with the problem of pupil motivation at school. However, from the point of view of Dewey's general theory of experience and

thought, it is marginal. As a matter of fact, the excerpt and Kolb's interpretation of it gives a unilateral and erroneous picture of Dewey's theory on experience and reflective thought and action (see figure 3).

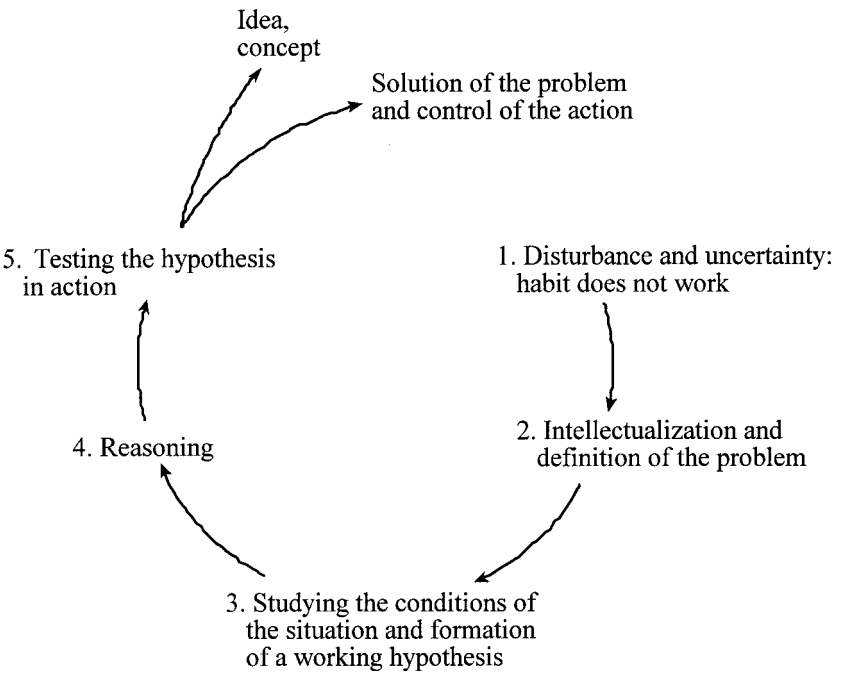

Figure 3. Dewey's model of reflective thought and action.

Dewey developed the conception of experience in his works *Experience and Nature* (1925) and *Art as Experience* (1934). His conceptions of reflective thought and learning he presented most clearly in his works on thought and logic: *How We Think* (1910), *Essays in Experimental Logic* (1916) and *Logic, Theory of Inquiry* (1938).[1] Dewey's approach is a naturalistic one. On the basis of Darwinian biological theory of evolution, it takes the adaptation of the organism to its environment as its starting point (see Dewey 1976). In adapting to the environment, individuals form habits–routine ways of doing things. When these habits do not function, a problem, uncertainty and a crisis emerges and calls for reflective thought and investigation into the conditions of the situation. As in experimental research in natural science, a hypothesis is formulated and tested in practice. The central issue in Dewey's conception of experiment is whether an authority-bond and routine ways of thinking and action can be replaced by a 'reconstructive' and reflective way.

Dewey makes a distinction between a primary and a secondary experience. The primary experience is composed of material interaction with the physical and social environment. For Dewey things are – as he says in *Experience and Nature* (LW 1: 28):

> objects to be treated, used, acted upon and with, enjoyed and endured, even more than things to be known. They are things had before they are things cognized.

The secondary experience is a reflective experience that makes the environment and its things as objects of reflection and knowledge. It is the failure and uncertainty of the primary experience that gives rise to reflective thought and learning.

The phases of reflective thought and action

The phases of reflective learning as defined by Dewey are presented in figure 3. In the following, I shall briefly deal with the content and significance of each of the phases.

(1) *The indeterminate situation: the habit does not work*

Routinized ways of doing things are mostly accomplished without reflection. When the normal course of activity is disturbed, a state of uncertainty and indetermination emerges. The starting point of the experience is not experience understood as an internal representation or recollection of an individual but as a disturbance in the human, material activity or in the man-environment system. Some kind of obstacle or resistance in the situation makes the normal flow of action difficult. The inhibition of direct action is a necessary precondition of reflective thought bringing about 'hesitation and delay that is essential to thinking' (LW 8: 201). Reflective thought starts with studying the conditions, resources, aids, difficulties and obstacles of action.

(2) *Intellectualization: defining the problem*

The process of reflective thought starts with an attempt to define what is wrong in the situation. The actor forms a tentative conception of the difficulty and defines the problem. The formulation of the problem already presupposes the studying of the conditions of the situation and transformation of the problem-situation itself. Dewey underlines the significance of the problem definition for thought. The problem that directs the acquisition of knowledge and further studies of the conditions of the situation (LW 12: 112):

> Without a problem, there is blind groping in the dark. The way in which the problem is conceived decides what specific suggestions are entertained and which are dismissed; what data are selected and which rejected; it is the criterion for relevancy and irrelevancy of hypotheses and conceptual structures.

(3) *Studying the conditions of the situation and formation of a working hypothesis*

In the following phase the analysis and diagnosis of the conditions takes place. The conditions include both material and social conditions and the means and resources with which the problem is supposed to be resolved. The presupposition of the possible solution is called a working hypothesis. A working hypothesis also can be characterized as a guiding idea or a plan. The working hypothesis – like the problem – is tentative.

(4) *Reasoning - in a narrower sense*

Reasoning is composed of the elaboration of the meaning of ideas in relation to each other. In reasoning, thought experiments can be done. In it the tenability of the working hypothesis can be evaluated and tested in the light of the knowledge and resources

available for an individual or a community. These thought experiments are important because they allow the return to the beginning again. The results of material and practical experiments are non-recursive. The thought experiments can lead to the reformulating of a working hypothesis.

(5) *Testing the hypothesis by action*

The working hypothesis is tested by trying to realize it in practice, by reconstructing the situation or the man-environment relationship. Dewey says that only the practical testing of the hypothesis in material activity makes it possible to draw conclusions of its validity. That is why he calls the reasoning in the previous phase as reasoning in a narrower sense. Proper reasoning takes place as a part of the process of testing of the hypothesis in practice. The situation is reconstructed according to the requirements of the hypothesis, to see whether the consequences deduced from the hypothesis become real in practice. Thought is not armchair activity. Overt, material actions are needed. Actions that use cultural artefacts constitute an essential part of thought (MW 10: 328):

> Upon this view, thinking, or knowledge-getting, is far from being the armchair thing it is often supposed to be .... Hands and feet, apparatus and appliances of all kinds are as much a part of it as changes in the brain. Since these physical operations (including the cerebral events) and equipment's are a part of thinking, thinking is mental, not because of a peculiar stuff which enters into it or of peculiar non-natural activities which constitute it, but because of what physical acts and appliances do: the distinctive purpose for which they are employed and the distinctive results which they accomplish.

Dewey does not include the outcomes of this process as an independent phase in his model. He, however, deals with them. The testing of the hypothesis does not always lead to the confirmation of the hypothesis. But the hypothesis makes learning possible, because the outcome can be compared to the initial suppositions implied in the hypothesis. This differentiates the process from bare trial and error.

What is important is Dewey's statement that the process has two kinds of result. The direct, immediate outcome is that the situation becomes reconstructed in such a way that the initial problem becomes resolved. This outcome means the increased control over the activity. Another, indirect and intellectual outcome is the production of a meaning that can be used as a resource in forthcoming problem situations. Dewey says (1916: 22–23):

> And it may well be that this by-product, this gift of the gods, is incomparably more valuable for living a life than is the primary and intended result of control, essential as that control to having a life to live.

None of the phases of Dewey's model of reflective activity are included in Kolb's model of Lewinian experiential learning. None of them is included in the model (figure 2) that Kolb presents as Dewey's model of learning either. The essence of Dewey's thought disappears in Kolb's treatment. There is no reflective learning for Dewey outside problem, hypothesis and its testing in practice. The difference becomes even more pronounced if we look at how Dewey differentiates between non-reflective and reflective experience and between empirical and theoretical thought.

The two-edged nature of experience: empirical and theoretical thought

Habit has a twofold meaning for Dewey. It is, on the one hand, the great flywheel of society. It is necessary, in this society, to have stabilized ways of doing things that function well and in a predictable way in the recurring situations of life. On the other hand, the act of following these habits can turn into a conservative factor, an obstacle for change and innovation. In *How We Think*, in a short passage 'The meaning of experience' Dewey defines the dual nature of experience (LW 8: 277):

> The term experience may thus be interpreted with reference either to the empirical or to the experimental attitude of mind. Experience is not a rigid and closed thing; it is vital, and hence growing. When dominated by the past, by custom and routine, it is often opposed to the reasonable, the thoughtful. But experience also includes the reflection that sets us free from the limiting influence of sense, appetite, and tradition.

Experimental and theoretical thought liberates us from intellectual laziness and from the tyranny of tradition. Dewey compares empirical and theoretical thinking in the 13th chapter of *How We Think*. Empirical thinking is based on observation of regularly occurring or coinciding things and phenomena. It does not imply hypotheses of the causes of mechanisms. As such, empirical thinking is useful in many everyday situations. But empirical thinking entails, according to Dewey, three obvious disadvantages (LW 8: 269–270).

- It leads to false conclusions. Empirical experience does not contain any criteria for evaluating which of the conclusions might be right and which wrong. That makes empirical experience a veritable source of many false conceptions.
- Empirical experience is helpless in confronting and explaining change and the emergence of the new (LW 8: 270): Empirical inference follows the grooves and ruts that custom wears and has no track to follow when the groove disappears.
- Empirical experience is often accompanied by mental inertia and dogmatism. Dewey is quite relentless in characterizing this feature of empirical thinking: laziness, conformism, slave-like dependence on authority. 'Passivity, docility, acquiescence, come to be primal intellectual virtues'. Scientific thinking is necessary for liberating the thinker from the tyranny of habit and perception, and this liberation is a precondition of progress (LW 8: 277):

> When dominated by the past, by custom and routine, it is often opposed to the reasonable, the thoughtful. But experience also includes the reflection that sets us free from the limiting influence of sense, appetite, and tradition. Experience may welcome and assimilate all that the most exact and penetrating thought discovers.

Dewey presents here the fact that the testimony of experience often means seeing things through the lens of the established and traditional, the self-evident. Therefore, 'it follows that it would be impossible to overestimate the educational importance of arriving at conceptions… Without this conceptualization or intellectualization nothing is gained that can be carried over to better understanding of new experiences' (LW 8: 238–329).

Dewey, however, thinks that concepts and meanings are not constructed in the head alone. They are generalizations of the interactions between humans and the entities of

environment, in practical activity. It is the regularities of these interactions – including the properties of things involved – that make the transfer of concepts from one situation to another possible.

Hypothesis and models as plans of action

Why does Dewey not speak much about concepts in his model of reflective activity, although he underlines the significance of scientific concepts? There are at least two reasons for that. First, he wanted to stress that concepts are always tentative and have the nature of the hypothesis. That is why he often uses the terms hypothesis, working hypothesis and guiding idea instead of concept. Second, Dewey wanted to stress the functional and practical significance of concept and make a distinction from classical idealistic theories that regarded concept as mirror image of reality, as reflections of the pregiven and eternal structures of nature (Dewey 1916: 312–313):

> From the standpoint of the idea of working hypothesis, the chief function of philosophy is not to find out what difference ready-made formulae make, *if true*, but to arrive at and to clarify their *meanings as programs of behaviour for modifying the existent world*. From this standpoint, the meaning as a world-formula is practical and moral, not merely in the consequences that flow from accepting certain conceptual content as true, but as regards that content itself.

The continuity of a situation is realized through hypotheses and conceptions as plans of action. They are formed in one situation and are then transferred as 'programmes of behaviour' to other situations as tools of reflection, analysis and anticipation. Reflection and reconstruction of the environment are inseparable. This connection between thought, practice and the properties of things involved in actions has a profound epistemological significance. Thought is a part and an expression of the individual-environment system. The value of thought lies in what can be accomplished by it. The content of thought is about the interactions of the many entities of the system, not the experience of the individual when understood as recollections of events or immediate perceptions (Dewey MW 10: 339):

> Thinking is what some of the actual existences do. They are in no sense constituted by thinking; on the contrary, the problems of thought are set by their difficulties and its resources are furnished by their efficacies; its acts are their doings adapted to a distinctive end.

Dewey's idea of concepts as tools or plans of actions resembles Ludwig Wittgenstein's metaphor of words as tools, as well as Marx Wartofsky's theory of secondary artefacts. Wittgenstein uses in his *Philosophical Investigations* an example of a complete simple language game – the interaction of a mason and his helper constructing a house. Vocabulary is a tool kit that is instrumental in communication needed in practical activity, the construction of the house (Wittgenstein 1997: 3). Marx Wartofsky has a theory of different kinds of artefacts. Ordinary material tools are primary artefacts. Secondary artefacts, models and concepts, are generalizations of the ways of using the primary artefacts, that is the ways of man-environment interaction in practical activity (Wartofsky 1979: 142).

Dewey's conception is also a forerunner of modern practice-oriented, heterogeneous constructivism in philosophy and sociology of science (Pickering 1992).[3] It resembles

closely the idea of Ian Hacking presented in his *Representing and Intervening* (1983) according to which phenomena are constructed in a laboratory and do not exist as such in nature. It has also many similar features with actor network theory developed by Bruno Latour. Latour proposes that agency is distributed among humans and the non-human artefacts in networks (Latour 1993). The non-human entities also do things, react and contribute to the accomplishment of the aims of activity (Latour 1994).

Conclusions

We have to conclude that Kolb does not give an adequate interpretation of Dewey's concept of experience and reflective thought. Kolb speaks about experiential learning. Dewey speaks about experimental thought and activity. These terms are phonetically close. However, they are theoretically and epistemologically quite far apart. For Dewey, there is no reflective thought without a disturbance in the habits and ways of doing things, without hypotheses and testing them in practice. In his thinking, experience includes the objective forms of interaction between humans and the environment including all the artefacts and things involved in the interaction. To Dewey, experience is not a matter of psychological state, nor anything in the minds of individuals.

In 1949, Dewey started to write a new introduction to his main metaphysical work *Experience and Nature*. In this unfinished introduction, Dewey expressed his disappointment about the nondualist conception of experience – covering the individual and the world – being interpreted mainly in an individual and psychological way.[4] Dewey says that had he an opportunity to rewrite *Experience and Nature* he would give it a new name *Culture and Nature* (LW 1: 361). He would use culture 'in its anthropological sense'. He regarded it as philosophically important that culture comprises both artefacts and humans in their mutual interaction. The concept of culture also covers the large variety of human activities and practices necessary for understanding the thinking and actions of individuals. Dewey cites Bronislaw Malinowski (LW 1: 364): 'Culture is at the same time psychological and collective'. In this late text, Dewey comes very near the cultural psychology of the 1990s (Shweder 1990, Cole 1997) that regards the interaction between an individual and culture as the basic unit of analysis.

It appears to me that the concept of experiential learning, in the form used by Kolb and the adult education tradition, represents the kind of psychological reductionism that Dewey considered a misinterpretation of his antidualist conception of experience. This conception is based in Kolb's book on the model of a very particular historical incident – or habit: the immediate feedback in human relation training. Although this procedure has developed into one of the tenets of T-group training, it is epistemologically highly problematic and cannot be generalized as a way in which people learn and gain understanding of the world and of their own possibilities in it. When the romantic biological and therapeutic ideas of humanistic psychology are combined with it, a thoroughly individualistic conception of learning emerges.

Why is this conception so popular within adult education? Why is the language it uses set apart from the philosophical theorizing of man's possibilities of gaining knowledge in the philosophy and sociology of knowledge? Perhaps the idea of experiential learning forms an attractive package for adult educators. It combines spontaneity, feeling, and deep individual insights with the possibility of rational thought and reflection. It maintains the humanistic belief in every individual's capacity to grow and learn, so important for the concept of life long learning. It comprises a positive

ideology that is evidently important for adult education. However, I fear that the price of this package for adult education research and practice is high. Along with that package, adult education is at risk of remaining a quasi-scientific academic field without connection to the philosophical, anthropological, sociological and psychological studies of learning and thought. Moreover, the belief in an individual's capabilities and his individual experience leads us away from the analysis of cultural and social conditions of learning that are essential to any serious enterprise of fostering change and learning in real life.

Notes

1. In this paper, I refer mainly to the critical edition of Dewey's writings edited by Jo Ann Boydston, abbreviated as: EW = The Early Works 1882–1898, five volumes; MW = The Middle Works, 1899–1924, 15 volumes; and LW = The Later Works 1925–1953, 17 volumes. For a good presentation of Dewey's conception of experience, see *Art and experience*, chapter three, 'Having an experience' (LW 10, 42–63).

2. On the phases of reflective thought and learning, see *How We Think* (LW 8: 199–208) and *Logic, a Theory of Inquiry* (LW 12: 105–122). On page 157 of *Democracy and Education* (1916) Dewey has concisely presented the key characteristics of reflective thought (MW 9: 157). For recent philosophical interpretations of Dewey's theory of logic and thought, see Burke (1994), and Campbell (1995).

3. A philosopher of science, Sergio Sismondo, makes the distinction between three different meanings of constructivism: social constructivism, Neo-Kantian constructivism and heterogeneous constructivism (Sismondo 1996). Because the material entities are an essential part involved in Dewey's reconstruction of the situation, Dewey represents heterogeneous constructivism as also in actor-network theory (Latour 1993) and cultural historical activity theory, that regards consciousness always as mediated by artefacts, tools and signs (Vygotksy 1978).

4. '"Experience" had become effectively identified with experiencing in the sense of the psychological, and the psychological had become established as that which is intrinsically psychical, mental, private. My insistence that experience" also designates what is experienced was a mere ideological thundering in the Index for it ignored the ironical twist which made this use of "experience" strange and incomprehensible' (LW 1: 362).

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