Towards a New Theory of Learning and Development

Patrick Bradbery

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# Towards a New Theory of Learning and Development

Patrick Bradbery, Charles Sturt University, NSW, Australia

*Abstract: The Western education system has been criticised by Rupert Murdoch, among others, as a Nineteenth Century system failing to cope with the demands of the Twenty-first Century. Over the course of the Twentieth Century and beyond, research has revealed insights regarding the way in which humans learn. In fields as diverse as neuro-science, quantum physics, psychology, developmental theory and spirituality these insights have tumbled onto the stage. However, few of these insights have impacted significantly on the praxis of education. There is a disturbing sameness about the way in which learning is facilitated in educational institutions and other organisations. In particular, the confusion of knowledge acquisition and memorisation with learning, and narrow conceptions of development have contributed to the situation so harshly judged by Murdoch. In this paper, a new and more comprehensive theory of learning and development is presented. By integrating some of the insights revealed by Twentieth Century research, the process of learning is dissected and reimagined. Similarly, the process of development of the psyche is dissected and reimagined. The two are then integrated into a new theory which, among other things, takes account of the need to unlearn as part of the learning process, and the developmental nature of learning. Implications for educational praxis are discussed and recommendations made for changes in that praxis.*

Keywords: Learning and Development, Educational Praxis, Unlearning to Learn, Developing as Learners

## Introduction

I N THE 2008 Boyer Lectures, Rupert Murdoch (2008) was highly critical of the contemporary Western education system, particularly as exemplified in Australia. He suggested that the one-size-fits-all model of the 19th Century is obsolete and needs to be updated to cope with the demands of the 21st Century. Criticism of contemporary education has been levelled by many others including Guemide and Mehdani (2010), Moss and Lee (2010), Shanks (2006) and Mulderrig (2003).

Over the course of the 20th Century, much energy has been devoted to research in education, learning and teaching and individual development. Despite the extensive work carried out by contemporary researchers, the legitimacy of the claims made by Murdoch and others is difficult to refute. In Australia, as in many other parts of the world, there is growing disquiet, which is met rather ineffectively by system wide testing of the basic numeracy and literacy capability of primary school children. This testing is based on a rather essentialist view of education as espoused by Bagley (1934; 1938). At the very best, in not acknowledging the need for a philosophical review, it smacks of perennialism (Hutchins, 1936).

In this paper, it is argued that conventional wisdom about education, learning and development is a major contributing factor to the failure to move beyond education systems adequate for past environments. A brief review of developments in thinking regarding learning and development, which have occurred in the Twentieth Century and beyond, provides the

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foundation for reimagining learning and development. The implications of this reimagining for emergent educational praxis are explored in an attempt to guide the development of an education system that is more likely to meet the demands of the emergent wicked problems (Kesavan et al, 2009) facing humanity.

## The Inherited System

At the start of the Twentieth Century, universal education of children was not a given, not even in the Western world. Females were generally regarded as not needing to be educated. Among males, education was highly class specific, in most cases regarded as necessary to the extent that it allowed occupational competence. In many cases this was focussed on the acquisition of basic literacy and numeracy skills, although for many not even these were essential.

Where education was provided, the essentialist or perennialist transmission models were prominent. The teacher-as-expert would deliver to the student that which was to be learned. The student's task was to receive, remember and regurgitate the content. This may have included the process of drill, whereby repetition ensured that recall of the knowledge was facilitated.

Not a great deal of attention was paid to the process of learning, and even less to the development of the learner. There was little change despite the progressive ideas of Dewey (1916). Learning theory, such as there was, was an extension of the fundamental theories developed by Greek philosophers in the 5th century BCE. This basic view of learning, which ties it only to the acquisition of knowledge rather than its subsequent application seems to be lacking utility.

Throughout the Twentieth Century a great deal of learning praxis has relied on a rather simplistic combination of fundamental concepts developed by the empiricists and the rationalists in ancient Greece. However, significant research carried out during the last hundred years or so has provided a more nuanced view of learning and development.

## Twentieth Century Insights

One of the most significant insights from Twentieth Century research on learning theory has been the distinction between learning and development. Although the boundaries between them are sometimes blurred, each of these related phenomena are explored separately below. This is followed by a brief exploration of the contributions of contemporary brain research to our understanding of learning and development.

## Learning

Contemporary theories of learning build mainly on the rationalist view of learning, apart from the behaviourist learning or operant conditioning theories of Skinner (1976) and his fellow behaviourists. Behaviourists believe that learning occurs when there is a change in an observable behaviour, which occurs when a connection is made between two events: the stimulus; and the response. Behaviour can be changed when this link is manipulated, and so learning takes place. Operant conditioning is based on the idea that a person's behaviour is directed by its (expected) consequences.

Bandura (1977) extended behavioural learning theory, suggesting that learning can occur as a result of vicarious conditioning. This theory involves the observed behaviour of others and the consequences of that behaviour. If the consequences are seen as desirable, then the behaviour will be copied, if undesirable, avoided by the observer.

From the rationalist perspective, mind is the centre of learning processes. The cognitive theories of learning are based on the belief that learning is an internal purposive process concerned with thinking, perception, organisation and insight (McFadzean, 2001). Cognitive theories propose that people learn by engaging memories and integrating them with incoming perceptions. Insightful learning occurs when past experiences or existing knowledge is adapted to a novel experience.

Cognitive learning occurs when problems are analysed or broken down into constituent elements. These elements can then be restructured into new relationships, creating new ideas, insights. This encourages learners to view situations from different perspectives. Learning can be enhanced if a number of people come together to share their knowledge with one another—team or social learning.

Social learning theories build on both cognitive and humanist learning theories with the claim that learning is a social activity that happens in relationship. Social learning theory began as an attempt to integrate the insights of psychoanalysis with those of behaviourism (Dollard and Miller, 1950). Since its creation, it has moved away from its Freudian roots and become more cognitive. Contemporary social learning theory builds on Bateson's (1972) proposition that meaning is derived only through relationships. Learning takes place only in the relationship between learner and the object of learning.

Much of the work in this area is derived from the socio-cultural (-historical) theory of the Soviet psychologist, Vygotsky (1978), and builds upon a foundational principle that all cognitive learning occurs at a social level, before occurring at the individual level. This principle carries with it several corollaries; that learning is mediated by others; that social dialogue is an important component of learning; and that cultural tools (beliefs, artefacts, systems) are accessed and acquire meaning in social contexts (Cullen, 1999: 45).

In this framework, learning is a continual process of transforming existing knowledge into new knowledge through personal-social interaction. However, what is learned and how it is learned are matters of individual interpretation of experience.

Humanist theories of learning are extensions of cognitive theories, and are concerned with experiences and feelings, which lead to individual fulfilment and personal growth. Probably the best known humanist proponent other than Dewey (1916), is Maslow (1968; 1971). In order to achieve self-actualisation, lower level needs such as safety, belonging and esteem need to be at least partially fulfilled. Maslow perceived the aim of education to be the assistance of learners to achieve self-actualisation, thus linking learning to development. Another advocate of humanism, Rogers (1983) claimed that learning should be significant, meaningful and experiential. It should involve both thoughts and feelings.

This type of learning is also known as experiential (Kolb, 1984), and it has five important characteristics:

1.  It involves the whole person, emotions and cognitions.
2.  It is self-initiated, with a sense of discovery coming from within.
3.  It is pervasive and makes a difference to the attitudes, behaviour and possibly personality of the learner.

4.  It is evaluated by the learner, who knows whether their needs have been met.
5.  The essence of the learning has meaning for the learner.

Arguably, the most important enhancement to humanist learning theory came from the work of Swiss psychologist Piaget (1950), who shared Werner's (1957) general organismic, inner-directed view of human development. Piaget proposed that cognitive development unfolds in much the same way a logical argument unfolds, step by step in a logically necessary sequence of stages and sub-stages. He drew a sharp and significant distinction between empirical knowledge (learning) and logico-mathematical knowledge (development).

Bateson (1972) extended the staged development theory of Piaget beyond children to incorporate stages beyond Piaget's formal operations. The significance of Bateson's approach to learning lies in the clarity of the categories he proposed. Bateson (1972: 283) defined learning as an action that denotes change, with change itself denoting, in turn, processes which are also subject to change. Included in this view is the idea that all learning is stochastic because it involves trial and error.

Arising from this, Bateson proposed the following four categories of learning:

1.  Zero Learning: all acts that are not subject to correction.
2.  Learning One: revision of choice within a given set of alternatives.
3.  Learning Two: revision of the set from which the choice is to be made.
4.  Learning Three: revision of a set of sets.

Argyris and Schön (1978) redefined Bateson's Learning One as single-loop learning, and Learning Two as double-loop learning. Implied in these categories of learning is a developmental process. Until the appropriate developmental changes occur in the individual, they are incapable of incorporating the higher levels of learning into their repertoire.

Kolb's (1984) learning theory is an adaptation of Piaget via Lewin (1951), which combines Piaget's learning (Kolb's active experimentation and concrete experience) with Piaget's development (Kolb's reflective observation and abstract conceptualisation). Kolb proposed a cycle through which individual learning progresses.

## Development

As with learning there have been significant advances in theoretical perspectives regarding development during the Twentieth Century. For the purpose of this paper, only those with a direct connection to learning (cognitive-developmental (Kohlberg, 1969)) are considered, although in the final analysis it may be said that all individual development theories can illuminate learning pathways.

A significant amount of contemporary theory and research on adult development can be traced back to the late 1960s, when developmental theorists challenged Piaget. They questioned whether his highest stage of formal operations was the pinnacle of development. The challenge was that further development was possible beyond formal operations, and that some people continue throughout their lifespan to transform their thinking and meaning-making into more complex and inclusive ways of knowing (Day & O'Connor, 2003: 14).

While older theories of development, other than that of Vygotsky (1978), were concerned only with the individual, the focus of attention on group processes allows extension of the

idea of development to the group or team entity. Vygotsky demonstrated that learning is social and learning ("worthy of the name") is inseparable from development. A logical extension that has not received a great deal of attention in the literature, the idea of organisations developing through stages, has been an area of interest for some. Underpinning all of these extensions of individual development is the concept of the development of consciousness, which proposes that the consciousness of the whole of humanity (and perhaps of the universe) is also developing to more advanced states of being (Wilber, 2001).

The cognitive-developmental approach was fully stated for the first time by Dewey.

> …the aim of education is growth or development, both intellectual and moral. Ethical and psychological principles can aid the school in the greatest of all constructions, the building of a free and powerful character. Only knowledge of the order and connection of the stages in psychological development can insure this. Education is the work of supplying the conditions which will enable the psychological functions to mature in the freest and fullest manner (Dewey, 1964: 199).

The fundamental cognitive-developmental assumption is that basic mental structure is the result of interactions between certain organismic structuring tendencies and the structure of the outside world, rather than reflecting either one directly. This interaction leads to cognitive stages, which represent the transformations of simple early cognitive structures as these are applied to (or assimilate) the external world, and as they are accommodated to, or restructured by, the external world in the course of being applied to it.

The deep structure of our meaning-making systems involves the distinction between self and other or between subject and object. Development involves a process of redifferentiating and reintegrating the relationships. "The internal *experience of developmental change can be distressing*. Because it involves the loss of how I am composed, it can also be accompanied by a lack of composure" (Kegan, 1980: 374, italics in original).

It therefore follows that there will be a degree of inertia regarding developmental change. A reluctance to engage with the distress of transformation can lead to "arrested development" as a barrier to learning. Even though the appearance of adulthood is physically manifested, it may not be the case that ideological, psychological or spiritual adulthood has been attained.

In a wide ranging analysis based on sixty to seventy theories from Eastern as well as Western traditions, Wilber concluded that "all developmentalists, with virtually no exceptions, have a stage-like list, or even a ladder-like list, a holarchy of growth and development… — even the contemplative traditions…These stages are the result of empirical, phenomenological, and interpretive evidence and massive amounts of research data" (2001: 135).

At each stage of development, there is an expansion of consciousness or awareness, so that "there is a different view of the world — a different view of self and others — a different world-view" (Wilber, 2001: 132, italics in original). Not only is there a *different world-view*, different worlds are created by the evolution of consciousness. At each stage of development "you get a different type of *self-identity*, a different type of *self-need*, and a different type of *moral stance*" (Wilber, 2001: 132, italics in original).

Although not presented as developmental theories, Bierly et al's (2000) distinction between data, information, knowledge and wisdom (Table 1), and Allee's (1997) knowledge archetypes (Table 2) suggest that there are different kinds of learning taking place at different stages of

development. Although the two theories are not completely in alignment, both indicate different levels of learning, each creating a different kind of knowledge.

**Table 1: Distinctions between Data, Information, Knowledge and Wisdom**

| Level | Definition | Learning process | Outcome |
|---|---|---|---|
| Data | Raw facts | Accumulating truths | Memorisation (data bank) |
| Information | Meaningful, useful data | Giving form and functionality | Comprehension (information bank) |
| Knowledge | Clear understanding of information | Analysis and synthesis | Understanding (knowledge bank) |
| Wisdom | Using knowledge to establish and achieve goals | Discerning judgements and taking appropriate action | Better living/success (wisdom bank) |
| Source: Bierly *et al*, 2000: 598 | | | |

**Table 2: Learning and Performance Framework Reference Chart**

| Knowledge | Learning | Action Type | Performance Focus |
|---|---|---|---|
| Data | Instinctual (Sensing) | Data | Feedback (Gathering information) |
| Information | Single-loop (Action without reflection) | Procedures | Efficiency (Doing something the most efficient way) |
| Knowledge | Double-loop (Self-conscious reflection) | Functional (Doing it the best way) | Effectiveness |
| Meaning | Communal (understanding context, relationships, and trends) | Managing (Understanding what promotes and impedes effectiveness) | Productivity |
| Philosophy | Deutero (Self-organising) | Integrating | Optimisation (Seeing where an activity fits in the whole picture) |
| Wisdom | Generative (Value driven) | Renewing | Integrity (Finding or reconnecting with one's purpose) |
| Union | Synergistic (Connection) | Union | Sustainability (Understanding values in greater context) |
| Source: Adapted from Allee, 1997: 67-8 | | | |

## Brain Research

Contemporary brain research provides further insight into the concepts of learning and development. According to Rock and Schwartz (2006), neurons in the brain communicate with one another through movement of ions, which travel through channels that are, at their narrowest point, only a little more than a single ion wide. This means that the brain is a quantum environment and therefore subject to the laws of quantum mechanics.

There are a number of important implications of this finding. One is that the act of focussing attention on a mental experience, "whether a thought, an insight, a picture in your mind's eye, or a fear, maintains the brain state arising in association with that experience" (Rock and Schwartz, 2006: 7). Attention continually reshapes the patterns of the brain, so that people who perform different functions in the organisation, that is apply their attention to different foci, will develop physiological differences that prevent them from seeing the world in the same way as others.

People's theories, expectations and attitudes, their mental maps, play a central role in their perceptions. If they are to learn they need to change those mental maps, and one way of doing that is by cultivating moments of insight. At a moment of insight, a complex set of new connections is created. These have the potential to enhance mental maps and overcome the

brain's resistance to change. This requires repeated attention to the insight. For insights to be useful in this way, they need to be self-generated, not provided by an outside "expert" as conclusions. "People will experience the adrenaline-like rush of insight only if they go through the process of making connections themselves" (Rock and Schwartz, 2006: 8).

Gardner's (1983) theory of multiple intelligences further complicates comprehension of the learning process. In his lengthy research on brain functions and the learning process, he came to the conclusion that there were seven distinct variations of the learning process each using a different part of the brain, thus supporting Vygotsky (1978). Noting that each individual seems to have a distinct mixture of tendencies to use these different learning processes, he labelled each of these tendencies as an intelligence. This raises the question of whether each of these intelligences deals with a different learning process.

Gardner later suggested two further intelligences that meet the eight criteria he used to assess the original seven. These were naturalist intelligence and existential intelligence, with an understanding that the latter may incorporate a form of spiritual intelligence (Gardner, 1999). Thus, the nature of knowledge, and hence the nature of learning, may well vary depending on the intelligence to which it relates.

On the basis of his theory, Gardner suggested that much of the speculation and research that has focused on learning has been concerned with but one of the human intelligences, that is the logical-mathematical. In particular, he identified Piaget's (1950) research as focused exclusively with the logical-mathematical intelligence. If Gardner is correct, then the contemporary comprehension of the learning process is but the "tip of the iceberg".

Making sense of these various findings from learning theory, development theory and neuro-science is challenging. Converting sense-making into learning and development praxis is even more so. It calls for a re-imagining of the conventional wisdom regarding learning and development.

## Re-imagining Learning and Development

When various theories of learning are combined, it remains difficult to isolate the essence of individual learning. Bierly et al (2000) and Allee (1997) suggested that there are different levels of learning connected to different levels of knowledge. Gardner's (1983) theory of multiple intelligences implies that learners have varying degrees of capacity to learn different kinds of things, and Kolb et al (1971), Kim (1993) and Bawden and Zuber-Skerritt (2002) suggested that there are different ways of learning depending on the intended outcome of the learning, as well as the learning preferences of the learner. The process of learning will therefore be contingent on these variables and more. The stage of development of the learner, for example, will constrain their ability to engage in some kinds of learning.

As the literature review has indicated learning is a phenomenon that develops through levels. That is, learning encompasses and is encompassed by the phenomenon of development. Further, the phenomenon of development is characterised by a quantum change. There is a movement from a former state to a new state of being. This necessarily requires a "letting go" of the former state of being, in order to move into the new state of being. The discipline of team learning (Senge, 1990) also specifies a requirement to "bracket" or "let go of" individual mental models. This process of "letting go" is reminiscent of the epoche that forms an integral part of the transcendental phenomenology approach defined by Husserl (1931). Imaginative variation is also used as part of the process in transcendental phenomenology.

Imaginative variation enters the developmental transformation process in the form of endeavouring to imagine a new way to interpret a dilemma, a new way to "see the world". The need to hold the tension of the dialectic until a new way forward is found is important to the successful navigation of the transformation.

The resolution of this dialectic allows the consolidation of the developmental transformation. This parallels the final stage of the transcendental phenomenological research process, in which the researcher synthesises the meanings and essences of the phenomenon under study (Moustakas, 1994). Thus the application of imaginative variation can also be a tool for synthesising a new model of learning and development.

Imaginative variation is aimed at producing a "structural differentiation among the infinite multiplicities of actual and possible cognitions that relate to the object in question and thus can somehow go together to make up the unity of an identifying synthesis" (Moustakas, 1994: 35). This involves seeking all possible meanings, seeking divergent perspectives, and varying the frames of reference about the phenomenon.

Contemporary research into learning and development supports the progressive educational perspective of the humanists. The emphasis for understanding learning processes needs to be firmly focused on the learner, not on the teacher or other external player. Unlearning is recognised as an important part of the learning process. Further, there needs to be an integration of learning and development into a wholistic model that takes account of the activities occurring within the brain and other parts of the nervous system. As the learner develops as a learner, not only will they develop different world-views, but they will also habitually access different learning modes.

Applying imaginative variation to these characteristics of contemporary comprehension of learning and development allows the creation of a new model. The following model is proposed as one that can cater to these requirements, and provide guidance for the creation of outcome focused learning and development processes more appropriate to contemporary demands.

## The Model

Applying imaginative variation to the phenomenon of learning as described in this paper, has resulted in the development of a new model of the learning process, which integrates levels of consciousness, Kolb's (1976) learning cycle and Allee's (1997) knowledge archetypes. It also is consistent with principles from each of the four schools of thought regarding learning, and the insights provided by neurological research.

The concept of levels of consciousness is an integration of cognitive development theories with theories of mind (e.g. von Eckartsberg, 1989; Wilber, 1998). There are many variations regarding the number of levels of consciousness, however, the majority of theories contain between five and ten levels, with the most common number being seven. For the purpose of this paper, it has been convenient to propose nine levels, but this is not definitive (Figure 1).
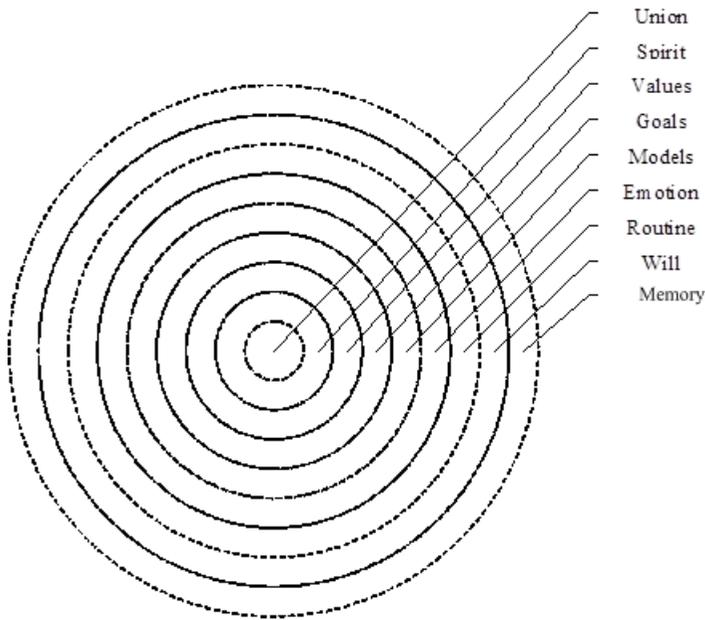
Figure 1: Nine Levels of Consciousness

The nine levels of consciousness proposed for the purpose of this exploration, which are more or less correlated with Wilber's levels of consciousness (1998: 64), are:

1. Memory (for items of data)—Wilber's sensation
2. Will (conscious decision)—Wilber's impulse
3. Routine (habitual actions)—Wilber's perception
4. Emotion (conscious awareness of self)—Wilber's emotion
5. Models (abstract representations of reality)—Wilber's symbols
6. Goals (conscious intention)—Wilber's concepts
7. Values (conscious choice of moral intent)—Wilber's con-op
8. Wisdom (personal unconscious)—Wilber's form-op
9. Union (collective unconscious)—Wilber's vision-logic

When Kolb's cycle is examined imaginatively in parallel with Allee's knowledge archetypes, it is possible to identify eight components in the cycle of learning, rather than the four proposed by Kolb and later by Kim. Although Allee proposed only seven categories of knowledge in her archetype, it makes sense to include emotional knowledge as an eighth category (Figure 2).
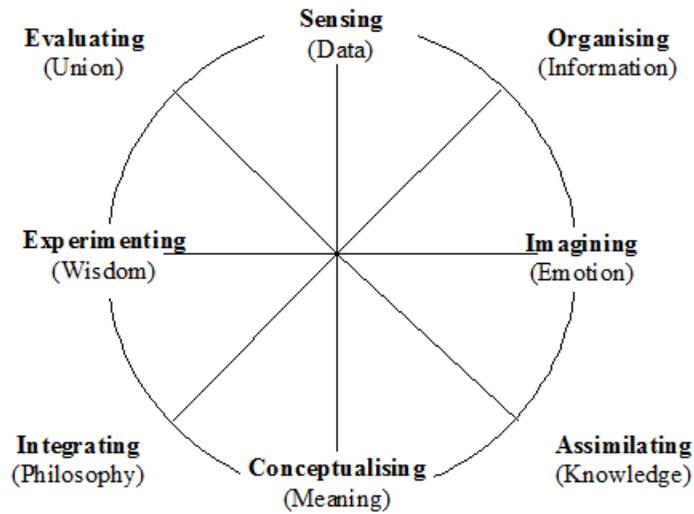
Figure 2: Modified Kolb Learning Cycle Integrating Allee

This integration suggests that the learning cycle commences with sensing data from the environment. The data is then organised into information, which to a large extent occurs within the perceptual process. The next step consists of imagining possibilities, which is where emotional knowledge is created, as the feelings created by the perceptual process are labelled by the learner. It is important to note also that imagination may be the start of a learning cycle, rather than an external sensing. The assimilation process occurs next, as the combined information and emotional responses to it are transformed into knowledge by assimilating it with pre-existing schemata. Meaning is extracted from that knowledge as new schemata are created by the mind. These new schemata are then integrated into the philosophy/paradigm/world-view of the learner. This is the "Aha!" moment in the learning process, the point where insight is likely to lead to release of endorphins. Again, a variation needs to be noted here. It may be that the new meaning does not sit comfortably with the existing philosophy. The accumulation of such discomfort can create a "strange attractor" leading to a developmental transformation in the learner. The next phase in the learning process comprises experimenting or taking some action, which is the point that Allee claims wisdom is encountered. Finally, the experiment or action is evaluated and this creates the union which completes the learning cycle.

When this expanded view of the learning cycle is combined with the levels of consciousness, a learning grid is created that can be used to trace out different kinds of learning (Figure 3). This grid is a simplified representation of the pathways through the learning cycle and levels of consciousness that different kinds of learning are likely to take. It should be remembered that what is actually occurring is the excitation of neurons in the brain (or perhaps in the spinal cord). The energising of different pathways brings about different kinds of learning. It should also be understood that while all pathways are potentially possible, developmental theory and brain research suggest that it is less likely that the higher (or deeper) levels of learning will take place in an individual who has not progressed to the appropriate stage of development.
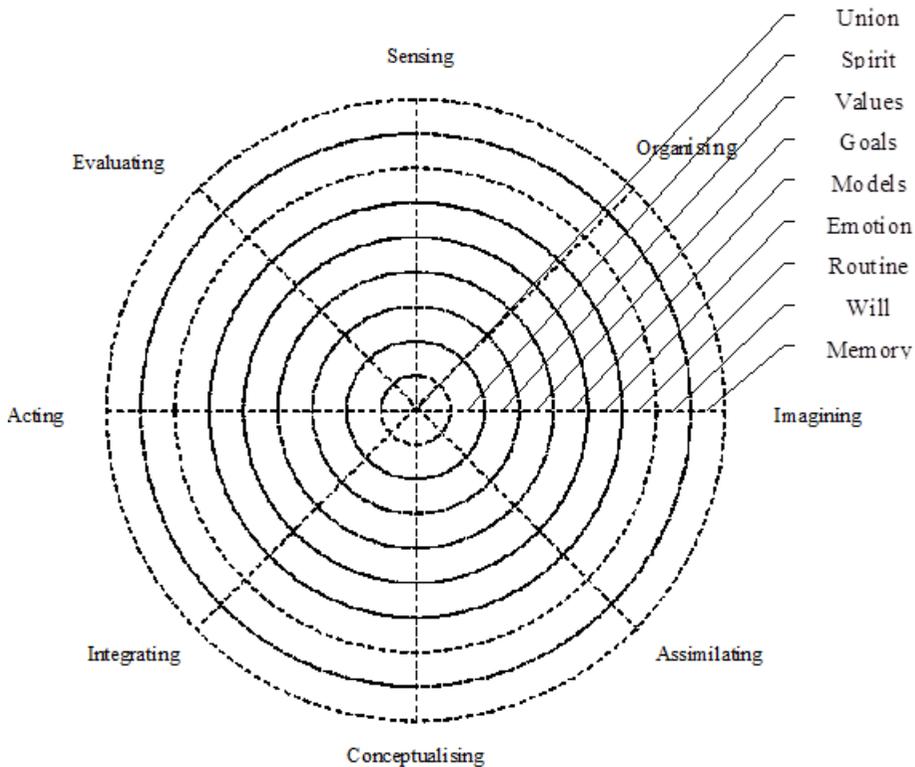
Figure 3: Learning Grid

## Implications for the Education "Industry"

On the basis that there are clearly different kinds of learning as has been proposed above, it follows that a re-examination of our society's educational practices is important. Traditionally, it has been presumed that there is a natural hierarchy of learning, which is more or less represented by the steps and stages in our educational institutions. However, close examination of the reality of the demographic transitions in those educational institutions over the course of the Twentieth Century paints a different picture. At the start of the century, very few of the population received anything beyond a basic formal education, if that. Those who went to university were but a small elite, and those who progressed to higher degrees even less.

    Nevertheless, the presumption of this hierarchy is supported by the idea that there are different kinds of learning, each of which is engaging a deeper level of consciousness (Table 3). Perhaps 100 years ago, the hierarchy existed by default, but this is no longer the case. The types of learning shown in the table are elaborated in Bradbery (2011).

**Table 3: Levels of Consciousness versus Levels of Education**

| Level of Consciousness | Dominant Learning Types | Targeted Education Level |
|---|---|---|
| Memory and will | Reflexive and impulsive | Prior to schooling |
| Routine | Opportunistic | Pre-school |
| Emotion | Relationship | Primary school |
| Models | Expertise | Secondary school and vocational |
| Goals | Achievement | Baccalaureate |
| Values | Strategic | Masters degree |
| Wisdom | Alchemic | Doctoral degree |
| Union | Mystic | Spiritual "schools" |

It is important to understand that each level of consciousness, and hence each type of learning integrates those lower in the hierarchy. Thus, even in the doctoral degree program there will be the need to use relationship and expertise learning, for example, as well as alchemic learning.

Each of the levels of formal education, from pre-school to doctoral, requires a different set of learning processes to be available to the learner, which integrates the lower levels. One practical difficulty with this is the traditional "lock-step" approach to learning levels. Since the development of the individual is not so much a function of age as it is of life experiences and responses thereto, the learning cohorts may be quite diverse in age and hence social maturity.

Allowing for development of the individual learner during the learning process and between learning levels also has implications for the "industry". It means that very different contexts and processes may be required for learners at different stages of development. It also implies that there should be a different focus for different levels of education.

Unfortunately, as implied above, examination of the levels of education, particularly at university level reveals a "flattening of the hierarchy" which parallels the flattening of the managerial hierarchy that has been occurring in work organisations. Ironically, in the case of work organisations this has occurred as a necessary response to the recognition that there is a need for them to become "learning organisations" (Senge, 1990). In universities, the flattening of the hierarchy means that there is a paucity of opportunity and encouragement for students at all levels to go beyond expertise learning. This point is demonstrated in the following quote: "Universities need to increasingly include a vocational focus in their post-graduate courses and offerings to be competitive, says Stephen Garton, dean of the faculty of arts at the University of Sydney" (Vincent, 2006: 3).

The final implication considered in respect of the learning "industry" is the design and application of developmental events for individuals as well as providing the hurdle for transition from one level to the next. While it may be easy enough to design a test for the degree to which one has embraced the social norms of the culture, that is, one has "completed" their primary education, this does not guarantee readiness for secondary education.

There need to be "challenge tasks" designed that provide evidence that the learner is ready for the next level—in this case secondary/vocational education. Ideally, those challenge

tasks will be developmental tasks. That is, in carrying them out, the developmental leap is facilitated, if it has not already occurred.

If the challenge task is completed successfully, the learner is deemed ready to move forward in the system. If it is not, then another challenge task is attempted until completed successfully. Only then does the learner move on to the next level.

## Conclusion

This paper has demonstrated the wide variety of perceptions of the essence of the learning process. It has examined the four contemporary schools of thought regarding learning, as well as a number of other perceptions of the learning process, including implications of contemporary research into brain science as it impacts on our understanding of the learning process.

Using a process of imaginative variation, which is part of the normal cognitive-developmental process, as well as Husserl's (1931) transcendental phenomenological research process, it has proposed an integrated model of consciousness and learning, which can be used to map the various categories and levels of learning. This model integrates the four schools of learning theory, insights from brain science and cognitive development theory. It proposes an extension of Kolb's (1984) learning cycle from four to eight stages, and a recognition that cognitive development proceeds through a number of stages, each of which accesses a deeper level of consciousness. Each stage of development provides access to a deeper level of learning, which can be distinguished from earlier levels, and yet integrates these earlier levels.

This integrated model supports the traditional theoretical structure of educational institutions and levels of education, but is at variance with much of existing educational praxis. The paper has argued that this traditional structure has been allowed to erode to the extent that even doctoral qualifications are now regarded as vocational and hence attuned to expertise learning rather than the exploration of new consciousness that is the province of alchemic learning.

An indication of the changes that are required for our education industry to "get back on track" was touched upon briefly, but much more detailed research is required before such recommendations can be confidently adopted.

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## About the Author

*Dr. Patrick Bradbery*
Patrick is currently an Adjunct Research Fellow in the Institute of Land, Water and Society at Charles Sturt University (CSU). Until recently, he was Director of the Professional Development Unit (PDU) in the Faculty of Business at CSU. The PDU developed and administered specialist industry based courses, both accredited and non-accredited. He has had an extensive career in business management, as well as in management education. Patrick has had a long term interest in education and learning, particularly in the context of work organisations, and their leadership and management. His doctoral thesis was on learning, development and the learning organisation.

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