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Dealing with emergence and complexity in the humanities

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Introduction

From wide-ranging studies of dynamic systems, a new dialogue has begun to examine what constitutes evolution, learning, organisations and life itself. It is an interdisciplinary dialogue that focuses on the self-organisation of complex adaptive systems from the cellular to the social level. While being mapped within various scientific disciplines, these developments offer scientific alternatives to the predominantly reductionist assumptions that have informed science until now (Horn 2008:137-138).

As illustrated in this quote, the time has come for new ways of thinking when looking at the field of humanities in general, if this field is to be congruent with the demands of the 21st century. Exploring new metaphors, therefore, and thus adopting thinking modes emanating from the language of emergence and complex systems could help to combat reductionist and mechanistic thinking in the human sciences.

The structure of my argument regarding the contribution of these new modes of thinking to the humanities will focus on four issues. Firstly, I shall allude to a selection of characteristics of complex systems which translate into metaphors within the grammar of emergence and are of particular relevance to the humanities. I shall then go on to pay attention to views of knowledge and research in the humanities in the context of emergence. In this regard, I will unpack the "table of Morin" (in Horn 2008:138), where he juxtaposes the different emphases of concepts of knowledge and research in the humanities by contrasting the paradigms of simplicity and complexity. Thirdly, I shall briefly allude to some applications emergence metaphors can have for education and schooling. Finally, I shall point to the adoption of new modes of thinking to cope better with the demands of a complex world. Here I shall pay attention to the work of Hurst (2010) and Cilliers (2006).

The grammar of emergence's contribution to the human sciences

In trying to answer the question of what the grammar of emergence offers to the human sciences, it may be useful to explore a few characteristics of complex systems at a metaphorical level.

A working definition of a complex system is provided by Cilliers (1998:10) as follows: "any dynamic system which consists of a large number of components that are interacting dynamically at a local level". He goes on to say: "These multiple interactions are non-linear, involving complex feedback loops which continually adjust and modify the parts of the system and the system itself" (Cilliers 1998:10). He makes a clear distinction between hard complexity science – which aims to understand the principles of complex systems in the computational and natural sciences – and soft complexity science, which uses complexity as a metaphorical tool to understand living organisms and organisations. In similar vein, he says: "complexity thinking considers the epistemological implications of the ubiquity of complexity" (Cilliers 2001:7).

Complexity theory thinking in the context of this paper thus refers to the metaphorical understanding of complex systems of which the phenomenon of 'emergence' forms a crucial part. Emergence simply means that, in the interaction processes of the whole and parts of a system, internally within the system and externally with its environment, something new emerges that was not intrinsically contained in any constituent element of the system before (Morin 2007:12). Complexity theory thinking therefore offers the possibility of developing a conceptual framework that can be used to analyse the behaviour of systems that contain a large number of interacting components that pertain to interactions internally and externally with its environment. Nature itself and human culture are prime examples of such organic, complex systems (Semetsky 2008).

Morin (2008:6) warns us that "the difficulty of complex thought on a conceptual level is that it must face messes, interconnectedness among phenomena, fogginess, uncertainty, and contradiction. However, we can elaborate some conceptual tools, some principles for this adventure, and we can begin to perceive the face of the new paradigm of complexity that should emerge".

In the ensuing section, a brief exposition of the phenomenon of complex thinking and emergence follows. I have selected a few key characteristics of complex systems which I think speak profoundly to issues in the human sciences at a metaphorical level.

The fundamental difference between organic living complex and mechanical complicated systems

Not all systems with many parts are complex systems. On the contrary, there is a large difference between complicated mechanical systems and organic complex dynamic living systems. Complicated systems, such as machines or cars have many parts, but each part can be explained and be taken apart and replaced; dismantled and reconstituted without any effects to the integrity of the system. However, in the case of complex living systems, the parts cannot be separated without destroying the integrity of the whole system. Furthermore, complex systems cannot be reduced because of the nonlinear nature of their systemic interrelatedness (Cilliers 1998: 7-10). Moreover, Morin (2007) opens the discourse of a so-called 'generalised complexity' which offers a strategic way of thinking beyond dichotomies, such as amongst others modernist/postmodernist, logical/paradoxical and freedom/security, because it is based on the insight that choosing between opposite qualities implies epistemological failure. The latter happens precisely because important aspects of phenomenal reality must be understood as open complex systems that comprise wholes. Wholes resemble organically integrated systems rather than analytical aggregations of discrete entities. Hurst (2008:320) indicates that the difference lies between conceiving a whole either analytically (e.g. a car engine) or synthetically (a human body). Thus, what emerges is a systemic complex unity that does not equal the sum of the parts (Morin 2008:10).

A sensitive dependence on initial conditions focuses our attention on the importance of time and history

In essence, this fact means that, in the life of any complex dynamic system, both time and history are vitally important determinants of the nature of such a system. Haggis (2008:166) puts it succinctly: "The memory of a system always lingers" and "without time there is no emergence". It is precisely this untraceable history of interactions (both within and beyond the system) in determining the form of future emergencies that makes time and history of central importance.

A large extent of unpredictability and multiple causality in emergence necessitates a focus on effects rather than causes

Things simply emerge at certain points in history owing to a set of multiple interactions, over time, not as a result of a single generative causal structure (Byrne 2005). Moreover, a certain unpredictability, inherent in the very notion of emergence, is crucial to the life of complex systems. Although causality does exist, it is not a matter of *a* causes *b*; instead, it is a case of

multiple causality and merely unexpected emergence which, in some instances, results in a radical kind of novelty (Osberg 2005).

According to Byrne (2005), emergence is to some extent unpredictable; what emerges depends on what interacts, which is partly determined by chance, encounters and changes in the environments. He also maintains that emergence, although unpredictable, is constrained by internal features (initial conditions and interaction histories) and external features (e.g. interactions with the external environment). Haggis (2008:167-168) maintains that it is not necessarily a case of complete randomness. However, in general, the results of the interactions cannot be predicted beyond certain parameters, because one can never know in advance what will interact with what or what has interacted with what up to that point and what has resulted from previous unknown interactions. Complexity thinking, therefore, suggests a shift from our previous habitual preoccupation with causes to a focus on effects (Byrne 2005).

Top-down control does not make sense to the primarily decentralised spread of information and energy within emergent systems

Interaction processes within complex dynamic systems are completely decentralised, with order produced solely because of the multiple interactions in the absence of any centrally guiding brain. Because these interactions are always local, such effects are distributed throughout the system rather than emanating from any central cause (Osberg 2002). If sufficient interactions are taking place over a sufficiently long period of time, specific forms of order or organisation will emerge from within the system. A good example of such processes is the analogy of how neighbourhoods in cities organise themselves in social class, continually change, and adapt without being planned as such (Johnson 2001).

Thus, owing to the inherent nature of any open dynamic system, which constantly exchanges matter and energy with its external environment and simultaneously processes information across the system in a decentralised manner, any top-down control mechanism is counterproductive to emergence and simply does not make any sense. Furthermore, any top-down actions restrict choices and opportunities for feedback – and, in turn, also stifle autonomy and self-organisation (Hurst 2010). Complexity thinking therefore recognises that intelligence and sources of solutions to problems are distributed throughout an organisation and not confined to the top only (Lewin 1992:50).

Creative energy is heightened on the edges of chaos and order

Order should never be equated with control, since emergence of novel entities takes place between the edge of chaos and order, a phenomenon which resembles the ultimate height of creativity (Lewin 1992:55). Chaos is thus a normal precursor for order, and not its opposite. A dynamic system is bounded by its strange attractors, attractors that constrain its new emergence so that it does not dissipate into total chaos. A good example in ordinary life is that of a marble thrown into a salad bowl. The marble will always be bounded to move and create certain patterns of movement within the salad bowl and not fall out of the salad bowl. It will finally find a comfortable resting place within the salad bowl (McMillan 2008).

Parts and wholes are interrelated and interconnected, analogous to a hologram

In a hologram, light is recorded and encoded so that a scene can be reconstituted in its full three-dimensionality. The entire scene (whole) is captured at each individual point in the hologram. Thus, each small piece of holographic plate contains enough information to represent the whole picture. This gives rise to a very powerful and relevant metaphor for consideration in the human sciences.

In her discussion on human development and of how humankind can make a difference to a complex world, Hurst (2010:241) illustrates how the holographic metaphor creates hope for humanity. She goes on to say that, although we cannot grasp the full complexity of reality, human agents can make a difference if we consider humans in the light of the holographic metaphor. That points to the part/ whole relationship within a hologram. The role and influence of individuals who resembles both part and whole of an image can cause radical changes, if one considers that any human agent, although an individual is at the same time connected to a variety of social networks**.** If any action is taken by such a person, it can influence others to join in until a critical mass has been created and a tipping point is reached. Thus a viral response in the collective can result into a wholesale change overnight. In that sense, therefore, one could also say that a small beginning can have big effects.

Small changes can have big effects as a result of non-linearity

Given the non-linear nature of interactions that take place in complex adaptive systems, it is reasonable to say that a powerful concept is brought forth, a concept that echoes the previous notion of the power of a single individual (i.e. the individual who can make a difference by influencing

others through his/her social networks). The aspect of non-linearity simply means that small inputs can have big effects and this offers an important metaphor, the so-called 'butterfly effect': the flap of a butterfly's wings in the Pacific can cause a hurricane to happen on the other side of the globe. The opposite is also true in non-linear systems, namely, that big events do not necessarily have big effects. Indeed, small changes in nuances over time can bring about a unique emergence, a change in direction, a change in thought patterns and this, in turn, provides a single individual with an influential agency, someone who can make a difference against all odds. Such a notion gives hope a chance in an interconnected world (Horn 2008).

In the next section, I want to discuss the issue of how to deal with knowledge and research in the context of the complexity thinking paradigm. Here, I will discuss the table of Morin (2008); in this table, Morin juxtaposes the simplicity paradigm and complexity paradigms in terms of the concepts of knowledge and research and their implications for the humanities.

Dealing with complexity and emergence in the humanities

In answering the question of how best to handle complexity and emergence in knowledge and research in the human sciences, the reductionist and holistic paradigms are considered (see table1).

Paradigm of simplicity (reductionist)	**Paradigm of complexity (holistic)**
Adheres to principle of universality; treats all individual and local phenomena as residual and contingent; rejects temporal and historical irreversibility.	Does not deny universality and adopts complementarity; local and individual phenomena are intelligible in themselves; bring irreversibility to physics, biology and systems theory; temporal direction.
Reduce wholes to simple constituents. Seeks principles of order within complexes.	Integrates elements into ensembles of complexes; wholes are more than sum of parts; looks for self-organisation among elements of complexity.
Employs linear causality.	Non-linearity; principles of multiple causal interrelations.
Assumes total determinism and excludes chance. Isolates object from environment or context.	Allows for chance in its dialogic of process: order, disorder/disequilibrium – interaction-self-organisation. Object interacts with environment/con-

Separate object from subject; observer from-observed.	text.
Eliminates subject from objective scientific knowledge.	Puts the observer back into experimental situation; relocates human subjects into normal environments.
Eliminates 'being'; and 'existence' through formalisation.	Provides for scientific theory of the subject; being and existence to be acknowledged scientifically.
Does not recognise autonomy.	Considers autonomy in terms of self-organisation and self-production.
Treats contradiction as error and logic as absolute.	Sees logic as limited; regards contradictions and paradoxes as indices of deeper reality.
Thinks monologically.	Thinks dialogically; relates contrary concepts in a complementary manner.

(Source: Morin 2008)

The table of Morin (cited by Horn 2008:138) presents the different views of knowledge and research and is, to a large extent, self-explanatory. The table simply juxtaposes the different emphases which one can adopt, depending on one's lens or paradigm, of simplicity/reductionism or complexity and holism. The idea behind this juxtaposition is certainly not to create dichotomies, of either or, but to advocate a 'both and' perspective pertaining to knowledge and research in the human sciences. Both universality and locality are important concepts in research. Hence the adoption of complementarity. Another key point is the notion that both time and history are crucial factors in the life of complex systems. In the complexity paradigm there is simply no such thing as to consider the notion of reversibility of time and history, not even in physics, let alone in humanities.

In opposition to reduction, complexity thinking requires that one continually attempts to comprehend the relations between the whole and the parts. The principle of reduction is therefore replaced by a principle that conceives the relationship of whole-part mutual implication. The principle of disjunction, of clear separation between object and subject in research, between disciplines, between notions, and between subjects of knowledge, should be replaced by a principle that maintains the distinction but tries to establish the relationship (Morin in Horn 2008: 139).

Individual autonomy is being regarded as important in human sciences research, where the role of the subject is acknowledged and scientifically justified. Furthermore, the paradigm of complexity theory challenges the nomothetic programme of universally applicable knowledge at its very heart – it asserts that knowledge must be contextual (Byrne 2005:95). In this regard, Haggis (2008:167-169) wants to advocate a complexity based ontology in human sciences research which he succinctly describes as follows:

> Complexity ontology provides a way of thinking about institutions, cultures, groups and individuals as systems of interactions, which are in some important ways always unique (Haggis 2008:169).

What this means is, in effect, that a complex system itself has to be studied in terms of its interactions within and with its environment, rather than defining its key elements in relation to smaller units in the system and then comparing these with elements from other systems. He is therefore advocating that knowledge is contextual and that research in the human sciences as a field of study which interrogate living complex beings should take context seriously (Haggis 2008:167). Another important contribution which, I think, complexity thinking makes to research in the humanities is the formal recognition of life's paradoxes, which does not point to error, but merely reflects a deeper reality and the complex nature of life within living organisms in relation to dynamic surroundings.

To conclude this section, it is important to note that the overall purpose of this table was to indicate that it is not by ways of reduction and simplification that justice will be done to research and knowledge production in the humanities, but rather by adopting the complexity lens, which tends to view the world as a whole and which takes the context in which the subject finds himself or herself seriously.

Emergence and education

In this section, I shall apply emergence metaphors to education and schooling with a view to eliciting new thinking modes pertaining to schooling and education, both in the sense of a formal education system and schooling, and as the process of getting educated. In my discussion, I shall confine myself to briefly sketching a few important notions (given the limitations of scope in an article such as this).

Temporal emergent epistemology in education rather than spatial representational epistemology

Osberg, Biesta and Cilliers (2008:204-216) make a case for an emergent epistemology rather than a representational epistemology in education. Traditionally, Western educational institutions present knowledge about the world as something 'outside'; knowledge thus is primarily based on a representational epistemology. In stark contrast, complexity theory thinking claims that knowledge and the world are not separate systems, but part of the same evolving, complex system. In addition, it accepts that all representations of complex phenomena betray their object (Cilliers 1998) and that, no matter how we order the world, there will always be more ordering to come and that there cannot be a notion of any final order. Osberg *et al* (2008:205) go on to say that they do not deny the important role that representations of reality, such as films, photographs, artworks, theories and models play in facilitating a better understanding the world. However, they advocate that such representations should be regarded as tools and not as reality itself.

Moreover, they are heavily against a representational epistemology, where truth is used as criteria for a correct understanding the world, particularly when 'truth' is taken to mean a direct correspondence with reality. Such a position would be an illustration of a representational epistemology, which they want to dispute. In contrast to such a representational epistemology, which can also be called a spatial epistemology (because it depends on a correspondence between knowledge and the world), complexity theory thinking suggests a temporal epistemology which implies that "the quest for knowledge is not in order that we may develop more accurate understandings of a 'finished' reality, as it is" (Osberg *et al* 2008:205). Instead, they argue for finding out more complex and creative ways of interacting with our reality, because there are no final solutions, only ongoing interactions, leading to increasingly more complex interactions and solutions in an ever evolving world.

The implications for education and getting educated are various and multifaceted, and it is beyond the scope of this paper to delve too deeply into all these implications. Basically, the notion that what happens in the classroom between teachers and learners is not primarily about knowledge acquisition of a 'fixed 'world out there, but rather to attribute meaning to an unfolding reality and thus co-creating reality by ways of establishing relationships. In this context, it is important that teachers be educated persons themselves and masters of their subjects and that they teach in order to establish a climate that is conducive to meaningful learning and co-creating with their learners. Schooling therefore has to be seen as a practice which makes possible a dynamic self-renewing and creative engagement with content and curriculum, and not primarily a means of facilitating the acquisition of knowledge about the world. A temporal theory of knowledge or an emergent epistemology which complexity thinking favours therefore means

"that knowledge reaches us, not as something we receive, but as a response, which brings forth new worlds, because it adds something (which was not present anywhere before it appeared) to what came before" (Osberg *et al* 2008:215). In this sense, knowledge creation shows remarkable resemblance to Dewey's insights concerning a creative logic of education.

Creative logic of education in contrast to linear inferential logic

For Dewey (in Semetsky 2008:86-88) learning is not only a cognitive action, but consists primarily of integrated, multifaceted (cognitive and affective) processes of interactions with the world and others. For Dewey, the human mind – as an open system – comes into contact with the world and thus experiences interactions and transactions with the world and within persons that lead to a transformation of the whole situation and the persons involved. In the language of emergence, it is by means of apprehending these connections and interrelations that "an organism increases in complexity, and thus learns" (Semetsky 2008:86).

Classroom interaction and learning thus resemble interrelated experiences. The teacher is therefore responsible for creating a suitable learning environment that confronts learners with real-life problems in their known world, which he or she then uses to create a climate that is conducive to the facilitation of learning experiences. These experiences are processes of interactions between what is known and what is novel; these experiences are then subsequently reorganised into existing cognitive structures. These structures then increase in complexity and are thus altered, because learning has occurred. Grappling with problematic situations is often associated with feelings of disequilibrium, tension and discomfort by the persons involved. Even more interesting are the concepts of error amplifying and positive feedback which, between them, enable the evolution of a system towards higher levels of complexity, that is, the progressive reorganisation of the system's total structure or what Dewey called 'growth' (Dewey 1934/1980:23). Learning and growth therefore demand a constructive process based on reflective thinking, a process that is not grounded in linear inferential logic, but in the creative logic of artistic construction. In this regard the teacher has the important role of maintaining the balance between novelty and confirmation. However, Dewey was adamant that the learning process never stops and never results in total equilibrium, the latter of which means death. He maintains "that the more an organism learns, the more it still has to learn" (Dewey 1934/1980:24). This is in accordance with the notion that education is about growing and becoming, which is indeed a life-long process.

Emergence and spontaneous self-organisation defy 'control' in the classroom

Cilliers (1998) links up with Dewey's notions by referring to his concept of learning as 'unsupervised learning', in stark contrast to the direct information-processing model of traditional instruction. The idea of a self-organising principle based on the notion of constant feedback into a dynamic complex system militates against the concept of top-down control. Order is sometimes mistakenly equated with control. In fact, order emerges internally and spontaneously and not as a result of imposed control mechanisms (Wheatley 1992:95). Ironically, the principle of self-organisation, embedded in open dynamic systems, requires freedom and not control. Jantsch (1980:40) puts it as follows:

> The natural dynamics of complex systems teach us the optimistic principle of which we tend to despair in the human world: the more freedom in self-organisation, the more order.

In classroom interaction, Doll (1986:14) in particular argues against control, if real authentic learning and change are to happen. He maintains that transformative change in education is based upon three central assumptions: internality, spontaneity, and indefiniteness, where errors are seen as necessary actions in the process of learning and development. He states: "that in a classroom order does not need to be imposed externally – by God, scientific laws or teachers, order emerges internally through interaction" (Doll 1989:69). It is in this context that Doll encourages the dance metaphor, rather than the marching metaphor, for classrooms. This is in accordance with the view that the curriculum should become a tool for the emergence of new worlds, where co-evolution and cooperation are key principles in the evolution and development of human beings (Jantsch 1980).

Complex systems exhibit a sensitive dependence on initial conditions

As far as education in South Africa is concerned, we are still in the cage of our history. Because the schools were the literal site of the liberation struggle, certain struggle attitudes and mentalities prevail in the South African education system, even 19 years after democracy, simply owing to the system's memory (Van Niekerk 2012). There is ample evidence of a general lack of accountability of departmental government structures and an inability to provide proper infrastructure and logistics for the optimal functioning of the education system (e.g. poor textbook delivery and the lack of trained teachers in vacant posts (Bloch 2009)). Furthermore, research has shown that many educators view education as a product or a commodity; this results in the mindset that education can be discontinued and regained without any harm being done (Van Niekerk 2012).

However, in terms of complexity thinking, education is not a product or commodity that you have to acquire: it is a process of interactions and relationships experienced over time. Furthermore, if one accepts that education and learning are dynamic processes similar to complex dynamic systems, whereby cultures and habits are formed over time, it does not make sense to set up 'catch up' plans if schooling is disrupted as a result of strikes on the part of teacher unions. According to complexity thinking, the issue is not only that time is lost; what is lost is the legitimacy of the educational processes themselves. Moreover, it is a loss of what it means to experience systematic learning processes in order to become educated. To put it differently: over time, certain cultural habits, beliefs and mindsets are formed among learners and teachers in township and rural communities that might lead to disenchantment about education in general. Such a general mindset and resultant negative association with schooling might stifle people's motivation and curiosity to know and understand the unfolding world. It is possible that the meaning of 'getting educated' gets lost, to be replaced by a superficial belief in getting a qualification, without grasping the necessary mental and physical depth of knowledge and skills necessary to function adequately in the world of work.

Formal education systems are analogous to eco-systems

Education systems are embedded in a particular society, where "the school holds up the mirror for society in which a particular image is reflected" (Bernstein 1996:7). Moreover education systems, like all living, dynamic, complex systems, are interrelated with and dependent upon the circumstances embedded in the environment. Living beings are susceptible to being influenced and constrained by their habitat – with which they are in constant interaction. Education in South Africa, especially in the rural areas, is characterised by overcrowded classrooms, dilapidated school buildings, a lack of basic facilities (e.g. running water, flushing toilets, libraries, science laboratories), an inadequate provision of text books for each learner and, sometimes, untrained teachers. The mere fact that research shows that socio-economic status (SES) is an important determinant of a learner's ability to complete a school career tells us that the societal factors outside of the classroom are more important than what happens inside the school (Taylor 2012). This illustrates the point I want to make: an education system operates as an interdependent eco-system. In other words, if transport systems cannot help learners and teachers to get to the school on time and parents, for whatever reasons, do not take responsibility for their children's education, there is not going to be a successful schooling system in the near future in South Africa, irrespective of grandeur policies or announcements by the Minister of Basic Education. The problem of the disenchantment with schooling in South

Africa can only be alleviated if equal attention is paid to the infrastructure of society and schools and to the inherent value systems of South Africans, especially teachers and government officials. Thinking modes that are inclined towards living dynamic systems and complex wholes are more conducive than the prevalent reductionist and simplistic thinking in this regard.

In the final section of my paper, I shall argue that humans living in the 21st century need to adopt new modes of thinking in order to deal with the demands of an increasingly complex world, characterised by paradoxes, continual change, information overload, speed and noise.

Adopting new modes of thinking to cope better with the demands of a complex world

Two modes of thinking are relevant to this discussion: nebular analysis (Hurst 2010) and a certain slowness (Cilliers 2006).

Nebular analysis

Hurst (2010) illustrates complexity and emergence in the context of human development. She maintains that conceptual analyses within a complex world imply that we acknowledge that all our models are flawed since we cannot deal with reality in all its complexity. In her article about complexity and human development, Hurst (2010:233-250) maintains that we can never make absolute choices: we constantly face double binds that require renegotiations and critical rethinking, and we constantly need to revise our choices in order to do the least possible violence. I chose to select only one of her eloquent suggestions about thinking modes that deal with double binds (i.e. when we have to make choices).

Here, Hurst advocates the adoption of nebular analyses. These boil down to the mapping of paradoxical concepts, rather than making any final choice for one specific option, since complex concepts bring together multiple co-dependent and conflicting elements at the same time. For example, if one needs to analyse a concept such as 'developed nation', one would have to admit a certain degree of un-decidability about its exact meaning and dynamism in terms of its definition and re-definition. The concept of 'a developed nation' brings together multiple oppositions, such as security/freedom; individual/communal; personal/social; economics/environment; public/private. She therefore advocates that, when dealing with complex concepts, one must never settle on any kind of clear, final definition. Instead, one must think in terms of the complex mapping of concepts, whilst also acknowledging that vagueness in a concept, along with the difficulty working with the concept, does not point to critique but to realism. This is because we

have to fundamentally accept the notion of paradoxes and double binds as indices of deeper reality when living in a complex world (Hurst 2010:246). She refers to Morin who suggests that, when analysing a concept such as 'human development', it is safe to suggest that: "We are neither completely sure where we are headed, nor absolutely lost" (Morin in Hurst 2010:242).

She thus advocates a thinking mode of 'constant critical awareness', or a disposition of continual 're-negotiating options' and choices, since our knowledge of the exact situation (reality) is limited and flawed. This becomes possible if we are prepared to give up living with certainty and predictability, and embrace dynamic uncertainty.

Importance of certain slowness

Cilliers (2006:105-1120) addressed the issue of how to cope better with the demands of a complex world somewhat differently. He makes an argument against inappropriate fastness and unreflective speed. He is particularly concerned about the concept of speed in alignment with notions such as efficiency, success, quality and importance. He argues that a slower process is necessary, not only for the survival of certain important humane values or because of romantic ideals, but also because it allows us to better cope with the demands of a complex world.

He goes on to say that, for a complex system to have any identity, it cannot simply reflect its environment and the changes in this environment; it also has to resist some of these changes. This latter characteristic of complex systems is usually not recognised in a culture where speed is linked to efficiency and thus becomes a virtue onto itself.

He illustrates his argument by referring to the incidence of many popular movements that advocate the need to slow down. For example: the slow food movement. Here, the emphasis is on the process of making food with good nutrients and on enjoyment, rather than an insistence that food be prepared quickly. On the contrary, in its preparation, good food is associated with slower processes, processes that also create a sense of expectation and greater final fulfilment.

The notion of slow cities (in Italy) is another case in point. Cities have been developed which are more humane, which encourage walking instead of driving, which have small shops with local products instead of big shopping malls. These cities claim to offer their inhabitants a better and more humane quality of life.

Another example is that of the slow schooling movement, which questions educational achievements in a world geared for instant results. This movement emphasises contextual knowledge and reminds us that education is a process and not a function, which means that the journey is more important than the destination.

The conclusion of all these examples is obvious. Sophisticated, humane endeavours all take time and cannot be rushed.

Furthermore, Cilliers (2006:109) reminds us that being human implies having a body, something with its own rhythms and demands. If we reduce all of this to something merely instrumental, to transactions written in legal terms, if we demand results now, then we will stop being human. For example, even in language, he states: "if the words have been spoken, the meaning has not fully arrived yet. It is the anticipation of what it could yet mean, that draws us forward" (Cilliers 2006:110). In *Philosophy: the art of reflection*, he quotes Wendy Parkins (2004), where she maintains that we need an ethics of time, from the both moral perspective and purely pragmatic perspective of how to live and survive in a fast world.

Cilliers thus advocates the adoption of what he calls "a certain slowness" as a mode of thinking to cope better with the demands of a complex world. He maintains that a slower approach, where appropriate (Cilliers 2006:109), will enable us to retain our creative energy in the face of information overload, and sometimes irrelevant noise. He argues that more time for reflection will make us more humane and create more opportunities for us to appreciate life's beauty and the emergence of its small, unfolding mysteries.

Conclusion

In this paper, my aim was to explore relevant emergence metaphors with a view to applying these to the humanities in general and to education and schooling in particular. I firstly unpacked the grammar of emergence by explaining a selection of things that characterise complex systems. Secondly, I applied these to concepts of knowledge and research in the humanities by juxtaposing the paradigms of simplicity and complexity. Thirdly, I applied emergence metaphors to education and schooling and, finally, I suggested new modes of thinking to allow humans to cope better in a complex world.

My findings revealed that complexity theory yields organic rather than mechanistic modes of thinking and that these organic modes of thinking are appropriate to dynamic surroundings. Emphasis is given to interconnectedness, wholeness, multiple causal interrelations, and ethical responsibility instead of reductionism and control. Scientific certainty gives way to non-linearity and dynamic uncertainty. The holographic metaphor creates hope for humanity, because small inputs can eventually make a difference to an interconnected world.

The application of emergence metaphors reveals that an education system operates as an eco-system and therefore reflects the society in which it is embedded. In South Africa, the education system still reflects struggle mindsets amongst many teachers and teacher unions, and the lack of

infrastructure maintenance carries the scars of our history. An integrated and holistic approach is necessary if existing problems are to be adequately addressed.

In a complex world it is wise to accept that our models may be flawed. Nebular analysis is therefore put forward as a way of coping with choices whilst accepting the inevitability of double binds and the paradoxes of life. The importance of a certain slowness and ongoing reflection are thinking modes that are crucial if we are to cope better in a complex world and remain human.

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