THE MECHANICAL PENCIL

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Concepts in Distance Education

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CONTENTS

INTRODUCTION

The purpose of this book is defining and explaining concepts in distance learning academia. The intended audience are students, faculty staff and managers at tertiary education organisations of distance learning and general audiences of students, educators and teaching professionals. *The Mechanical Pencil* aims to provide a bridge between the concerns of learners on the one hand and educators on the other so that each-others' perspectives might be shared, informing the environment and culture of the distance education academic context. The ten chapters elucidate factors, concepts and trends which increasingly impact on the academic environment of distance learning. As such this book continues the communication process begun in *Research, Teaching and Learning: Pedagogy and Practice in the Open and Distance Learning Paradigm* (2012). However, rather than a pedagogical focus, this book examines the prevalent concerns of the distance learning academic *environment. The Mechanical Pencil* provides a critical commentary on the optimum factors which contribute to a successful learning environ for distance education students, staff and managers from a New Zealand and international perspective.

Chapter one takes a textual and diagrammatic approach to elucidate an outline of the structural components which support virtual teaching and learning in the distance education tertiary organisation. Chapter two focuses on motivation in teaching and learning – theory, concepts and practical learning tips. Chapter three discusses the theory and practice of effective teaching communication practices in distance education. Chapter four discusses concepts of culture, identity and equity in the distance learning tertiary organisation – with New Zealand as its cultural focus. Chapter five discusses the theory and concepts of academic freedom – traditionally a cornerstone of the tertiary education organisational culture. Chapter six describes good habits for teaching in learning – theory, concepts, learning contexts and practical tips. Chapter seven provides a discussion of the ethical culture of the tertiary teaching and learning environment. Chapter eight focuses on the phenomenon of open educational resources and their increasing relevancy in computer mediated learning environments. Chapter nine provides a discussion of networking skills for academia – workplace contexts, virtual networks and basic skill-sets. Chapter ten provides a discussion of the cultivation of a scientific mind-set – arguably an essential acquisition for academics in the tertiary education environment.

The research hypothesis that underscores this book is that the learning process in distance education is influenced by operational and teaching factors which enable the interaction of students and teachers within a paradigm and system of communicative learning transaction but also by secondary 'fields of experience' which are defined as the attitudes, lessons and values that an individual or group bring to bear on a situation, learning environment or problem which are determined by motivation, identity and equity, good learning habits, ethical engagement, networking and the scientific mind-set. While the literature in distance education has been concerned with theoretical definition and practical systemic experience (Laurillard, 2008; Lei, 2010; Murgatroyd and Woudstra, 1989; Poley, 1998; Rutland, 2007), this project is differentiated by its focus on the 'fields of experience' which provide optimum learning dispositions for distance education and that lead to experiences for student success. That academic 'climate' is often more important than structure in determining successful education outcomes is supported by Bruhn (2008) and Markham (2012).

It is timely that a resource on the learning environments which lead to student success is developed to keep pace with new directions in distance learning pedagogy and also to acknowledge the increasing role that distance education, and its myriad of developments, will play in equipping learners with education suitable for employment in the 21st century (Thompson and MacDonald, 2005). Increasing national and global demand, coupled with the economies of scale that are achievable in distance education for up-skilling a workforce for professional and industry needs, make the develop-

ment of resources which examine the pedagogy, practice and the creation of distance education learning environments all the more relevant.

While the conversation about differences between generations of learners and pedagogical learning styles may in some senses be 'overblown', the prevalence and ubiquity of information and computer technologies in the classroom (virtual or lecture-theatre), and the proliferation of web-based as well as traditional printed learning resources, make the transition to technologically enhanced teaching (that is a defining characteristic of distance education) all the more relevant for today's learners and of course for the academics and instructors who teach them. As Tapscott suggests, " [t]he ability to learn new things is more important than ever in a world where you have to process new information at lightning speed. Students need to be able to think creatively, critically, and collaboratively; to master the "basics" and excel in reading, math, science, and information literacy, and respond to opportunities and challenges with speed, agility, and innovation" (2009, p. 127). In one sense the transition for teachers is that between a one-to-many, mass-communication style of traditional education, towards an 'interactive' style of technologically enhanced education and distance learning, in which learners and students participate in an ongoing conversation of learning, interacting in the classroom (3D or virtual) and also in the wider world of the web and local community and (inter)national culture. The characteristics of this learning transition, not so much generational as inter-generational and systemic are summarised in the following table (After Tapscott, 2009, p. 133).

Mass communication learning	Interactive Learning
Teacher-centred	Learner-centred
One-size-fits-all	One-size-fits-one
Instruction: learning about	Discovery-learning to be
Individualistic learning	Collaborative learning
Use of one-many technology	Use of many-one-many technology
Centralised learning	De-centralised learning – mobile technology

Increasingly, knowledge characterised primarily by information is transferable, relatively impermanent and often constantly updated. However, the acquisition of skills to acquire knowledge, to think creatively and critically remain constant. This book is not primarily about what the classrooms of the future will look like or how they will be designed (the pedagogy of this process was described in *Research, Teaching and Learning*), however, the focus of this book is on learners as educators, and aims

to describe and critique fundamental educative concerns of the distance learning environment in the present day.

The main learning goal for any student who studies at a tertiary education organisation is of course a degree. Brown and Duguid describe the utility of a tertiary degree as follows: "The degree provides a public front of respectability. Behind its broad façade, students and faculty undertake many activities that society directly values. The broad façade also includes some activities that may be socially valuable but are not easily valued in the market place" (2000, p. 217). These values include the ability to think critically and creatively, to communicate complex information to clients, peers and colleagues, to participate in free-thinking and information-exchange within a democracy, to exercise critical judgment, to use facilities and technology, and to explore and exercise the rights of a citizen.

At the basis of many of the education trends and movements which are described in this book – the conceptual, the material, the systemic, the organisational is the notion of the increasing exercise of individual autonomy that is promoted by the proliferation of web-based information and computer technologies which form the productive electronic life-line of many information-based business contexts, including academia. The notion of individual autonomy forms an underlying concept of "the efficiency and sustainability of non-proprietary production in the networked information economy" as Benkler explains (2006, p. 356). The social-life of information is a complex topic, however as Benkler suggests, it is clear that whilst internet has in some senses elasticised relationships among neighbours, friends, family, associates, colleagues (sometime over long distances), it has also loosened the hierarchies of these relationships, and brought about "limited-purpose, loose relationships" in virtual communities (2006, p. 357). Concomitant with this is the intention to inform the quality of both social and intellectual capital in defined public and private education learning contexts and more widely in the public domain.

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Towards a Unified Concept of Distance Learning:

A Sketch of the Structure of Organisational Research, Teaching and Learning

This chapter has three objectives: Firstly, to discuss the pedagogical context for the current uses of technologically enhanced distance learning; secondly, to describe the four main dimensions along which distance learning operates; and thirdly, to describe the steps toward a unified concept of distance learning. There have been a number of influential theories which can be applied to the pedagogical dynamics of e-learning and distance education (such as behavioursim, instructivism, cognitivism, connectivism) but none have fully captured the holistic dynamics of learning involved. Furthermore, there have been criticisms made of each, coalescing around the incomplete adherence of the theories to the descriptions of dimensions along which distance learning operates. A unified concept of distance learning would need to encompass both pedgaogical theory and learning dimensions.

Introduction

As Brown and Dugoid state there are five basic structural components of a university – " . . . students, faculty, research, facilities, and an institution able to provide formal, accepted representation of work done" (2000, p. 232). However, as Kang and Gyorke suggest (2008), it is largely after the advent of the popular use of the internet (post 1990) that distance education entered into a 'post-modern development' phase (see Saba, 2007). Certainly with the use of technologically enhanced learning (for example, internet *blog* sites, *wikis*, *Twitter*, *MySpace*, *YouTube*, *social bookmarking*, etc) it is clear that both face-to-face and distance learners have more access (to the potential for use of) learning devices and information exchange and knowledge creation. Indeed the BYOT (bring your own technology) trend in parallel with the growth of virtual distance learning offers in increasingly personalised 24/7/365 access to teaching and learning (Lee and Levins, 2012, p. 76). Concomitant with this is the possibility for more control over what to learn, how to learn, when to learn, and how much to learn, and even why learning takes place – which lends itself both to a democratisation of the learning process and also, potentially more individuation of learning styles and control over learning activities (Kang and Gyorke, 2008). The three defining features of the virtual learning orgainsation that make it attractive from an operational viewpoint are that, firstly, physical distance is no-longer an unsurmountable barrier to eductaion (similarly temporal distance may also be extended); secondly, from the organisational viewpoint participants are relatively invisible (with the exception of an online digital profile); thirdly, social and logistical costs are lower (Sproull and Faraj, 1995). The attractions from the leaners perspective are: firstly, the advantages of the latter; secondly, an ability to overcome social inhibition to learning; thirdly, to learn at own pace and at reduced costs while balancing other life commitments, fourthly, easier access to lifelong learning.

  The main characteristics of an effective distance education concept involve several aspects of learning dimensions. Firstly, the *course-design dimension* – input from faculty teachers, students and instructional designers, course materials; secondly, the *teacher-learner dimension* – instructional pedagogy, course guidance, class management, organisation of study materials and learning activities; thirdly, a *technological dimension* –, technology use, telepresence, controlled access to electronic and blended-

learning content and communication forums; and fourthly a *psychological dimension in the learning component* – desire to learn and motivation, understanding of learning techniques and pedagogy, time-management, interpersonal relationship variables. Combining the insights from learning theories and from the four dimensions of distance learning practice, it may be possible to make inferences about what a unified concept of distance learning might begin to look like.

A course design dimension to distance learning

As Ajorgren and Fay (2002) state, the teaching-learning process comprises the design and regulation of learning activities and evaluations (learning activities refer to the set of opportunities which strengthen the learner's acquired knowledge of the curriculum). The outputs of effective distance learning include both objective and subjective learning results. Educational success in the form of qualifications – certificates, diplomas and degrees and psychological results which may include: improvement of communication skills, positive motivation and learning techniques, an ability to work supportively and collaboratively, the acquisition of time-management skills and the development of analytic, synthetic, and creative thinking skills.

At the centre of any practice of distance education is a mediating artefact – a tool, technology, learning device, content material. As Engestrom suggests mediation by 'tools and signs' "breaks down the Cartesian walls that isolate the individual mind from culture and society" (1999, p. 29). The main difference between contact learning and distance learning from one perspective is simply the centrality of the mediating artefact in distance learning (be it by tool, technology, course material or text). One of the most significant instructional designs ever used in a distance learning context is arguably the template attached to the NASA Spacecraft Pioneer 10 and 11 probes launched in the 1970s and currently approaching our outer galaxy. This template was designed to instruct another species in a visual and tactile language basic to the anthropomorphic form of *homo sapiens*, it was in effect the ultimate address label that would tell any intelligent species who encountered the Pioneers probes, something about the origin of its makers. Clearly then instructional design is fundamental to the distance learning context.
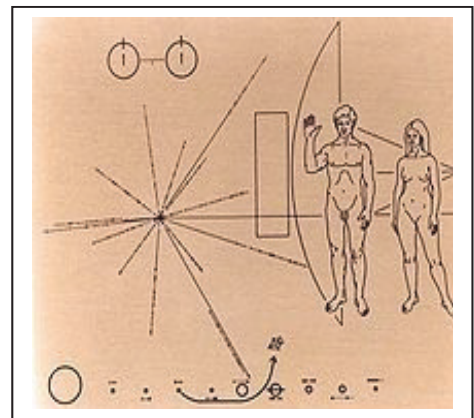
The mediating artefact is less central in contact learning (being rather peripheral to the main means of course communication – the spoken lecture). This is further supported by Kang and Gyorke (2008) who emphasise the 'reliance on physical devices' as one 'criteria for defining distance education', and further by Keegan (1990) who suggests that distance education is defined by ". . . the use of technical media – print, audio, video, or computer – to unite teacher and learner and carry the content of the course" (p. 44). If the communication device is also the mediating artefact it becomes easier to see how the mediating artefact might be both a 'portal' and 'bridging device' between teacher learner and learning material. As such it makes less sense to see education as a hieratic 'downward or upward' communication process (Trenholm, 2008) than to see it as bringing together different competencies as in nodes of networks of learning. It is thus increasing more like a rhizomal process (with multiple, non-hierachical, entry and exit points in data interpretation) (Deleuze and Guittari) between communication pathways mediated by 'gatekeepers' (Verderber et al., 2008) who are academic instructors and their students who may take on other task roles such as (facilitator, encourager, initiator and/or even servant leader), (Verderber, et al., 2008). The importance of the

mediating learning object in distance learning is also emphasised by a study by Bernard et al. (2009) who analysed three different types of learning interaction: student – content, student – student, and student – teacher to find which types of interaction contributed most to increases in student performance. As Kanwar and Daniel state, the results of this study revealed that increasing student – content interaction as the greatest effect, followed by student – student interaction and third – student –teacher interaction. (Kanwar and Daniel, 2009, para. 39).

A teacher-learner dimension – The pedagogy of distance learning

It has been suggested that because of the technologically mediated factor, the pedagogy of distance learning e-learning is behaviourist, that it is concerned more with responses to external stimuli and less concerned with the internal processes of learning. However, as Poley states, "Learners need to be at the centre of the process. Learners can learn from each other and from teaching faculty" (1998, p. 975). Knowledge of these internal learning processes may be explicit in learning management systems and is inherent in course, curriculum and online campus design. A process of instructional design, as Lein points out, may take the form of "breaking learning material into smaller instructional steps, which have a progressive interactive or modular quality against which the learner's performance may be measured providing positive and negative feedback" (2009, p. 2). Both of these features affecting the courseware and communication in distance learning tend to emphasise the 'background' validity of the behaviourist paradigm but also point to its substantial weaknesses in accounting for learner intentionality.

Behaviourism is not the only model of pedagogical theory that has been applied to distance learning; its major rival is cognitivism which is often conceptualised as a response to how the learner's mind processes and uses information. Consequently, cognitivism offers to more fully explain human behaviour by modelling mental structures. Cognitivism may be characterised by the use of schema and maps to organise content (Allen, 2007, p. 41) and emphasises the role of the learner's "thoughts, beliefs, attitudes and values" in the learning process (Schunk, 2007, p. 17). Cognitivism emphasises the role that intentionality, cognitive faculties and mental processes play in the learning process. It can individuate the learner but also point to aggregated similarities in learning styles.

A third pedagogical model of e-learning is constructionism, which follows from cognitivism in defining learning as an contextualised process of constructing knowledge. In constructionism the learning model is learner-centric, the learner takes an active role in the learning process, acquiring knowledge for themselves and processing it in a subjective way. Pedagogically characterised by activity based learning, constructivism is based on three main principles: a.) learners learn from their own framing of knowledge patterns and understanding, b.) learning is achieved through active experience and occurs when the learner uncovers inconsistencies between current knowledge, their own experiences, and instructional knowledge, (it is thus concerned psychologically with the 'cognitive-dissonance' or 'learning gap' paradigm of learning), c.) learning is adaptive and occurs in a socialised or remotely mediated context through interactions with an instructor and peers. In the constructivist model, learning is predicated on the learner's ability to adapt and has similarities with the Socratic method of question-and-answer mode of enquiry (Wachira et al., 2008, p. 2). Thus constructivism mediates between behaviourism and cognitivism being a theory which accounts for cognitive, situationists and functional styles of learning.

A fourth model of e-learning/distance education pedagogy has also been posited – that of 'connectivism'. The main proponents of this theory are Downes (2006) and Siemens (2008). Connectivism is a theory of distributed knowledge that denies knowledge is propositional. Instead it is suggested that knowledge is literally "the set of connections formed by actions and experience" (Downes, 2007,

p. 12). However, arguably the theory fails to account for the internal processes of learning – being a meta-cognitive conceptualisation of the flux of embodied learning. Connectivism is also a difficult theory to apply to the modality of instructional design except by conceptualising courseware as a node within a network. Whilst this networked conceptualisation is partially fitting, given that courses are taught within programs and degrees, it tends to underestimate the agency of the individual in the cognitive process of learning. As Gorsky claimed, learning is an internal mental process, hence the presence of connection as with interaction does not necessarily signify learning itself (2008). Nevertheless the theory goes some way to emphasise the multiple permutations for physical and virtual interconnectivity both for individual and group learners and also potentially for the nodal networks of inter-relations in the stratified distance learning organisation.

Table 1. Interconnections between the open and flexible learning teaching and learning process

OPEN AND DISTANCE LEARNING – TEACHING AND LEARNING PROCESS
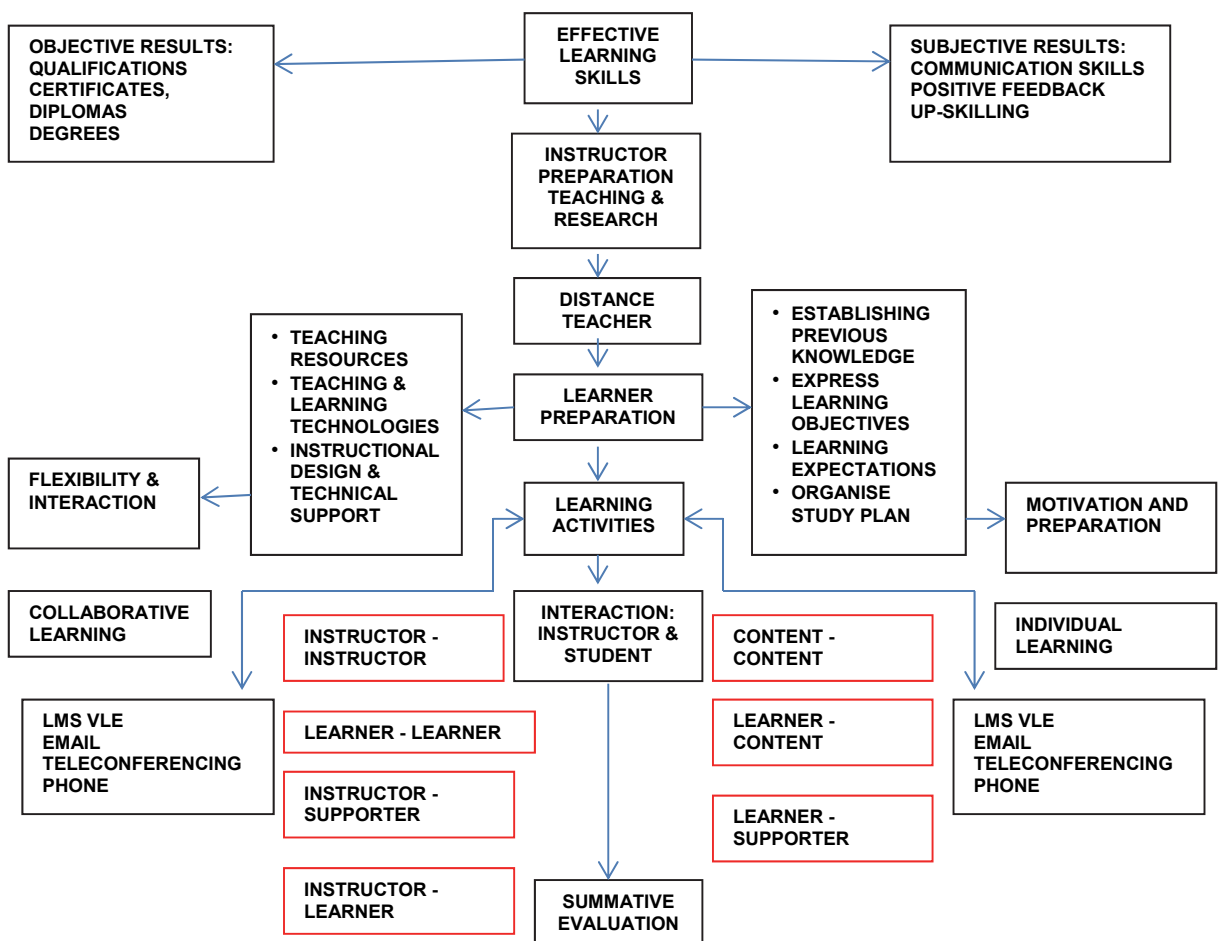
A technological dimension to distance learning

The dimensions of learning between students and faculty instructors in distance education may be represented on a continuum from tightly to loosely structured along a channel of communication which may be facilitated by ICI – internet, online campus learning management system, email, telephone or any other electronic or physical medium of communication and exchange.

These are emphasised in the figure 2. below:
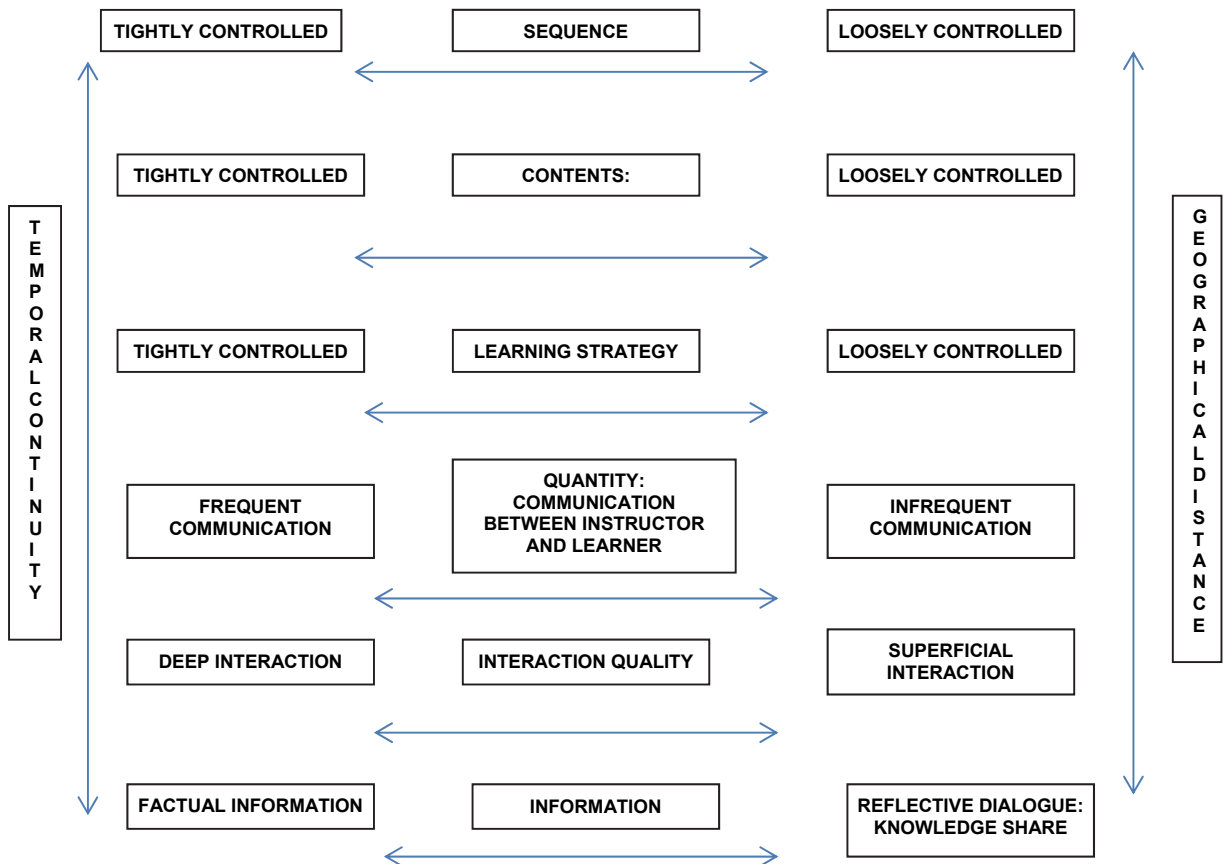
Figure 2. Dimensions of interaction in distance learning pedagogy (After Park (2011), Gay, Rieger and Bennington (2002)).

As Farajollahi, Zare, Homozi, Sarmadi, and Zarifsanaee suggest, distance learning may contain up to six features. These include: Telepresence, flexibility, communication, active-learning, collaboration and motivation (2010, p. 65). The modifiers of class contact are largely the online teaching infrastructure, asynchronous learning and the use of products such as *moodle* or *blackboard* for learning management system teaching practices. There are considerable benefits such as:

- Real-time communication
- Asynchronous communication - 24/7/365 global environment

- 'Virtual' research collaboration
- Electronic publishing and dissemination of information
- Real-time access to research results and research resources
- Rapid access to external research funding information
- Blended and multimedia presentation of research results

The online campus platform (Virtual Learning Environment VLE or Learning Management System LMS) provides pathways for teachers and students which offer continuity and depth, a 'focused academic resource base', links to a community of scholars and personalised support (1993). Teaching in this paradigm also satisfies Law's criteria of flexible learning opportunities expanding provision into niche areas which overcomes geographical constraints (Law, 1997, p. 16). A further benefit of flexible learning pedagogy is its mobility and connectivity. As Park suggests (2011, p. 82) there may be distinct stages of hierarchy along which the technological affordances of distance education allow learning to take place. These are described in Table 1.

Table 2: The structure of mobile communication, application examples and communication characteristics (After Park, 2011, p. 82).

Mobility Hierarchy	Example Applications	Technological Affordances
Level 1: Productivity	Calendars Schedule Contact information Grading	Asynchronous Individual work Content intensive
Level 2: Flexible Physical access	Local database Interactive prompting Just in time instruction	
Level 3: Capturing & Integrating data	Network database Data collection/synthesis Mobile library	
Level 4: Communication & Collaboration	Real time chat Annotations SMS Wireless email	Communication intensive Group work Synchronous Mobility

A psychological dimension to distance learning

The psychological dimesnion of distance education relates primarily to the learning transaction which may be facilitated across increased physical distance and time compared with contact education. It is thus about the material, physical and cognitive gap that arises in the symmetry between teachers and learners via the mediated artefact of learning materials.
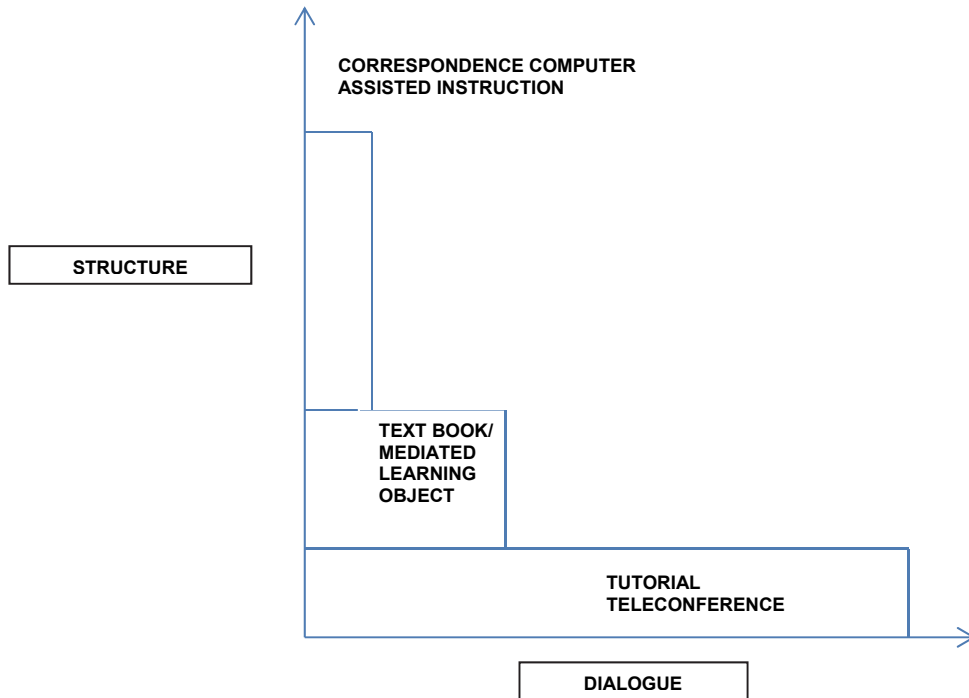
Figure 3. Relationship between structure and dialogue via artefact mediated distance education.

As Moore and Kearsley explain, "it is the physical distance [in distance education] that leads to a communication gap, a psychological space of potential misunderstandings between the instructors and the learners that has to be bridged by special teaching techniques; this is the 'Transactional Distance'" (2005, p. 224). As such distance learning attempts to overcome barriers of geography, time and, arguably, learning entry criteria but it is inherently a relationship between teacher and learner. Garrison (2000), for example also argues that this involves and evolution from a structural paradigm into a transactional paradigm. However, the extent to which the pedagogy of distance education adheres to a transactional paradigm is debatable. It is not simply the case that we can swap 'transaction' for 'distance' – indeed there is nothing really from the viewpoint only of 'transaction' that separates the contact learner from the distance learner. There may, however, be differences in the structure of the teaching relationship. What are the constituent parts of the relationship between learner, organisation and student? If education were only transactional it would be possible to buy a degree off the shelf, yet, barring prior learning recognition, this does not happen anywhere in the world. All learning should involve some intensity of communication and it is often the case that the power dynamic of this communication may be unequal. Thus it doesn't necessarily follow that when transactional distance decreases there is less learning (though there may be less dialogue) and when it increases there is any more or less autonomy. It may simply mean that the teaching relationship has changed. In traditional education there is decrease of distance as people come together with the corresponding educational benefit. If the learner and teacher are more remote and less communicative, it is not the case that the relationship is only transactional or contractual. Even in a state of laissez-faire learner autonomy with little student-teacher contact there is an implicit relationship. Furthermore one might

argue that from a 'transactional' viewpoint, the transaction is as much with the learning material as it is with the instructor (from the distance education provider's point of view this might be the desired state). Furthermore, the meaning of 'autonomy' is that learning is the learner's responsibility. Some silent listeners are very able contributors to assignments and some high contributors are less able. The relevance of transactional distance is highly ambivalent and may or may not be related to student retentions (Alukio, Fraser and Hendrikz, 2011, p. 117).

Transactional distance depends on three variables: dialogue, structure and autonomy (Kang and Gyorke, 2008, p. 204). As Gorsky and Caspi point out, empirical studies that attempted to support the Transactional Distance theory are actually leading it to be construed as tautologies. On the face of it the relationship between autonomy and learning is only tangentially co-efficient. It may lead people to simply infer that: "As understanding increases, misunderstanding decreases" (2005, p. 8). It may also not account for the subtle differences between supervision or teaching styles in distance learning. Kang and Gyorke also suggest that the theory "gets bogged down in terms of its interplay with social and global contexts" (2008, p. 205). However, as Saba suggests, it "allows the generation of an almost infinite number of hypotheses for research into the interactions between course restructures, dialogue between teachers and learners, and the student's propensity to exercise control of the learning process" (Alukio, Fraser and Hendrikz, 2011, p. 101). This seems to be a fair comment but if there are an un-ending variety of possible contexts – how closer does this bring us to a holistic definition? Khang and Gyork present an alternative model, 'CHAT theory' that emphasises the social-constructive spectrum of human relations. Here, the mediated artefact is informed by technological but also by cultural, historical and social contexts. These dimensions play an important role in the formation and utilisation of the mediated object and the object itself is to be considered a resource that moderates human behaviour, thus ". . . it links psychological processes with human being's external behaviour" (2011, p. 207). This adds a cognitive component to the socio-technical system - a dimension along which learning takes place.

Motivation may play a larger factor in distance learning given that except for designated group activities, students act independently and learning is individual, which for some student may reduce anxiety but also represents a barrier in as much as it may decrease the challenge and effort through absence of class-discussion and/or peer review. For distance students who study in groups, evidence from previous psychological studies suggests that the situation may be different. As Geen suggests, "under some conditions the presence of others leads to motivational gains whereas under other conditions it produces motivational decrements" (1995, p. 39). In other words, some group study may be motivational but other kinds of group study may be distracting. Furthermore, the more complex a task is the more anxiety it may involve and consequently the more with-holding behaviour takes place (1995, p. 47). Distance learning educators need to remain mindful of the motivational parameters of the learning tasks they set their students.

Towards a unified concept of distance education

Just as the learner-centric, autonomous distance learning student has increased ability to extend the environs of his her learning, so too does the distance learning teacher. Mobility itself is one indicator that the 'structure' of a distance learning organisation might be of a different kind to the typical contact University structure. As Aluko, Fraser and Hendrikz suggest, the structure of a distance learning organisation is a different 'meme' than that of contact education, referring not only to the way in which a teaching programme is designed but also to the 'rigidity or flexibility of the programmes educational objectives' (2011, p. 117). Arguably, the mediation of the learning object is less apparent in the contact education context – replaced by the instructor themselves – this plays a factor in the or-

ganisational model of the distance learning organisation which includes a greater proportion of re-sourcing in course design. It is fundamentally a different set of geometrical relations between learner – instructor and mediated object – a parallel rather than triangular relationship. Although traditionally, distance education organisations have been characterised by an 'iron triangle' of access, quality and cost. Wilhelm argues that there are four main factors in the creation of a virtual political public sphere. These are: the use of *antecedent resources* (the skills and capacities an individual brings to engaging with online education); *inclusiveness* (a commitment to the free, open and democratic principles of the internet and world wide web as well as a commitment to participating in online learning and knowledge creation); *deliberation* (being willing to subject one's opinion for critique and/or validation); and *design* (this comprises the architecture of the virtual network, including leaner instructor interaction, moderation, security etc). These four factors thus interact to create the concept of a politically engaged agent within the virtual learning community.

We can also extend the 'learner-centric' concept of the mediated learning object at the centre of the distance learning teaching nexus towards consideration of the organisation holistically as a mediated learning object. The various learning of stakeholders, students, faculty and administrative staff, qualification authorities combine in a series of inter-connected relationships defined by nodal networks of both physical and virtual presence. These may be characterised in Figure 4., below.
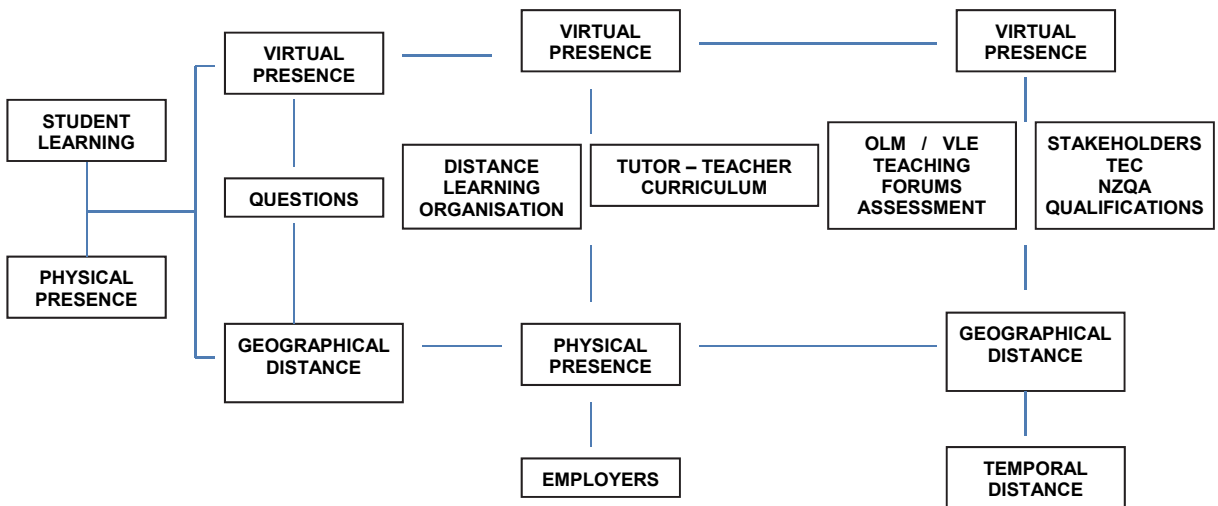
Figure 4. Towards a unified concept of distance learning

Here the application of socio-technical systems thinking as relevant, itself derived from general systems theory (Von Betalanffy, 1950). As Wang et al. (2010), suggest, "Organisations are seen as consisting of two interdependent systems: a technical system and a social system. The technical system is composed of equipment and processes; the social system consists of people and tasks" (2010, p. 322). Thus the 'information highway' for learners and teachers is charactersied by access to physical infrastructure, students and staff access to the internet (including organisational as well as citizen roles), electronic services (access to email, virtual learning environments, teachnical help), acccess to a organsiational homepage (intranet and website), the creation of an organisational community of learners (Wilhelm, 2000, p. 134). In distance learning the technical system is the physical infrastructure of the campus itself and the virtual presence that the organisation may create. The social system is the network of inter-relations between the agents of the organisations system and

their related sector stakeholders (see Figure 2. Above). Arguably the organisation's functioning – the servicing of its leaners needs is distributed across both infrastructural and social networks, mediated by the central learning artefact of courseware. The key measures of success are (Kanwar and Daniel, 2009, para. 49) "the ratio of graduates to enrolment, the time taken to complete a programme, the ratios of retention and dropout, and the response of the market to the graduates." Thus the organisation as a whole exists as a series of nodal networks, combinations and interfaces both real and virtual, networked in real-time and in asynchronus time, which provide learning services and administration for the teaching curriculum, students, faculty, and related government agencies such as NZQA (The New Zealand Qualifications Authority), Ministry of Education, and TEC (Tertiary Education Commission).

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EDUCATION FOR CREATIVITY:
Motivation in Teaching and Learning

Introduction

This chapter discusses motivation in the learning environment. An integral part of student learning requires motivation for that learning to take place. As Kahane states, in academia " . . . you begin as a fundamentally inadequate novice and set about stacking up knowledge, skill and accomplishment in order to deserve the esteem of those who survey and evaluate your performance" (cited in Hill, 2011, p. 17). Motivation is not only a feature of student learning but also of classroom instruction and moreover the interactive teaching techniques that are part of the classroom learning experience. As Pintrich states, motivation is derived from the Latin verb *movere*, meaning 'to move' (2003, p. 699). Motivation is the term given to the overcoming of inertia in a learning context, to the transition of the learning gap between a given and desired state of knowledge or skill competence. As Dykstra et al. suggest, "[s]tudents who are intrinsically motivated engage in an activity for enjoyment, to learn, and/or out of a sense of accomplishment, while extrinsic motivation arises out of a need to be rewarded, for example with a higher grade, or to avoid a penalty" (2011, p. 2). The 'control theory' of motivation assumes that people are compelled to act from the "promise of reward or the threat of punishment" (Deci, 1996, p. 1). This is consistent with the behaviourist concept of stimulus and response, however peoples' and particularly educationists' cognitive complexity reveals that there is far more to motivation in learning than 'sticks and carrots'. There is continued debate of whether there is a motivational 'ethic' but in as much as motivation is an inherent part of human nature, everyone has a right to find motivation – a willingness if not inherent justification to act towards a particular goal. Although people are conditioned by their environment there is a difference between acting for others and acting from 'free will' in accordance with one's own volition. As Deci suggests (1996, p. 2):

> When autonomous, people are fully willing to do what they are doing, and they embrace the activity with a sense of interest and commitment. Their actions emanate from their true sense of self, so they are being authentic. In contrast, to be controlled means to act because one is pressured. When controlled, people act without a sense of personal endorsement. Their behaviour is not an expression of the self, for the self has been subjugated to controls.

However, what is widely known in the psychology of learning is that there is a significant correlation between intrinsic motivation and academic achievement (Goldberg and Cornell, 1998). Conversely as Deci explains, "[m]otivation requires that people see a relationship between their behaviour and desired outcome, and instrumentalities are the linkages that allow people to see these behaviour-outcome relationships" (1996, p. 59). This linkage can in some circumstances (more remotely) be economic or intrinsic (by affective bonds). Motivation and its associated affective elements is one of the most important factors in students' learning and academic performance which is implicit but seldom formalised within teaching pedagogy. Motivation is commonly defined within the teaching and learning environment as the inter-relation of motivational beliefs (the inherent value of tasks) with achievement emotions (such as enjoyment, boredom or anxiety) and academic performance (Artino et al., 2010, p. 123). The concept of motivation has given some educational psychologists pause to reflect

on the appropriate theories of mind which might encompass motivation in the teaching and learning process. In this respect the main challenge to the 'information processing' model of learning has come from the necessity to include more subtle emotions and intentional beliefs in the learning process and to acknowledge the fact that all people are different and no two peoples perception of the learning context may be equal. Social cognitive theory holds that human functioning results from 'triadic, dynamic and reciprocal' inter-relation of behaviours (individual actions and choices) with personal factors (beliefs, intentions, and expectations) and factors in the physical and social environment (Artino et al., 2010, p. 1204). According to this model task value is balanced with self-efficacy. Task value involves students' beliefs of how relevant or interesting an activity (such as a course module or a qualification) is to them, whereas academic self-efficacy involves beliefs about the inter-relation of student's self-assessment and outside reinforcement of their ability to perform academic tasks (Artino et al., 2010, p. 1205). As Botkin et al., suggest academic learning requires a shift from maintenance learning (acquiring knowledge do deal with current issues) to dynamic learning (requiring development of new ideas) and this experience can be in itself highly motivational (1979).

By comparison the control-value theory of motivation defines achievement related emotions as 'internal affective rewards' which are associated with completion of learning tasks. This emotional self-evaluation may vary from enjoyment associated with new learning, to anxiety in completing a specific task to frustration and disappointment if the result is disproportionate to the effort involved (Artino et al., 2010, p. 1205). Unless learning conditions are made as equitable and comprehensible as possible many learners can perceive the entire learning state as an exercise of over-coming perceived limitations in self-efficacy and frustration with current perceived levels of competence. Consequently motivational beliefs defined in terms of task value and self-efficacies are correlated with course or learning-activity related enjoyment but also with anxiety in learning activities (Artino et al., 2010, p. 1205). Task value beliefs are therefore reasonably accurate predictors of learning satisfaction or boredom. If a learning task or course is believed to be useful, relevant and important students are more likely to feel motivated to task completion by their enjoyment of it (Artino et al., 2010, p. 1210). The design of lessons and course materials is a relevant factor in the enhancement of learning enjoyment. An overriding characteristic must be the maintenance of clear communication between student and instructor. Indeed the advent of personal and mobile virtual technologies has led commentators to speculate that it impacts both on the recruitment of staff but also in the entire learning and teaching communication exchange style, " . . . the old model of employee development – *recruit, train, supervise,* and *retain* – is outdated. The more appropriate employer-employee paradigm for this generation, we believe, is *initiate*, *engage*, *collaborate*, and *evolve*" (Tapscott, 2009, p. 172).

Emotion and motivation

Positive emotion is beneficial to learning however, negative emotion can also in some circumstances contribute as a motivation for learning. The fact that something is not enjoyed doesn't necessarily mean it is neither completed or completed well. However, enjoyment of a learning task may be an intrinsic reward. Emotion and affect are described as 'feeling[s], emotion[s] or desire[s], especially leading to action'. (Sikhwari, 2007, p. 523). Students who are confidant of their learning and of their learning environment are less likely to be disadvantaged by experiencing the inhibitory effects of anxiety in the learning performance. Enjoyment of the learning process is positively associated with successful educational outcomes whereas boredom and anxiety are negatively associated with academic performance. Consequently it behoves teachers to provide motivations inspiration in learning environments as well as subject content and the application of teaching pedagogy wherever possible. As Wesch states, "Care, responsibility, respect and knowledge are not only the foundations of love, they

are also the foundations and goals of learning, and are themselves the most important things to learn." (2011, p. 28) However, in the academic learning contexts work performance and assuring work quality and improvement may be distinguishable tasks. Thus while motivation for improving work quality is an implicit part of the learning context, it can be seen as distinguishable from both teaching and research but is nevertheless a central part of learning (Massy, W. F., Graham, S. W. , Short, P. M., 2007, p. 17)

It is useful for teachers to find ways to enhance the inter-relation between self-concept, motivation and academic achievement (Sikhwari, 2007, p. 520). However, it should be noted that prominent commentators have observed differences that are traditionally thought to exist between students and teachers. As Derek Bok explains:

> The members of Arts and Sciences faculties have special values and priorities, like all professionals. Above all, they are preoccupied with the challenge of discovering and transmitting knowledge and ideas. To them, knowledge is not a means to other ends: it is an end in itself – indeed, the principal end of academic life. Most students, on the other hand, have different reasons for acquiring a college education. They tend to look upon knowledge and ideas less as ends in themselves and more as a means toward accomplishing other gaols, such as becoming better, more mature human beings or achieving success in their careers (2006, pp. 34-35).

Understanding of motivation takes place in the context that most teaching pedagogies emphasise cognitive factors at the expense of affective factors. In this context intelligence is seen as the prime contributor to student success however, increasingly the affective component of learning – what teachers and students feel about themselves in relation to the learning task is increasingly important. As Kahane states of his own teaching motivation "Instead of modelling academic (and teaching) mastery as an escape from lack, I hope that I invite students to recognise that they are already good enough, and their learning can be a way of more fully experiencing themselves and their fundamental adequacy." (2011, p. 17). Increasingly affective factors play a critical role in the motivation, attitude and self-concept of students. Higher achievement is associated with optimal attitude and positive self-concept and efficient use of study time whereas students who have a negative attitude may impose limitations on their achievements (Sikhwari, 2007, p. 521). Whether students see themselves of having ability of feeling successful or failing, of being accepted or rejected, have having positive emotions in the learning environment – such as happiness, joy of learning, self-satisfaction, reciprocity – or whether students feel defeated influences aspects of behaviour or learning (Sikhwari, 2007, p. 521). Sikhwari suggests that the main influence that high motivation has on students is in giving them the ability to effectively select and persist in information processing (2007, p. 522). If a student is motivated and interested then there is an increase in depth of processing, memory, knowledge acquisition, attention and comprehension (Sikhwari, 2007, p. 522).

Self-concept and motivation

A student's self-concept is central to their understanding and perception of the learning process, it refers to a set of ideas that a student may believe about him or herself which exists on a continuum of positive and negative effect. As (Teoh et al., 2009, p. 721) suggest, factors related to personal beliefs include: "significance of learning, confidence, interest, efforts, family support, independence, self-direction, teacher's attention". In this context, although affect can have a large effect on student motivation it is more dangerous when unaccompanied by conscious cognition and the possibility for re-