

Models of webcasts and webinars: towards Interactive New-media Webcasts (INWeb)

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Abstract

In this paper we provide a context for models of Webcasts and Webinars from the perspective of the Institute for Work Based Learning (IWBL) at Middlesex University. Our synthesis of technical and pedagogic elements arising from these eLearning and marketing form a proposal for *the Interactive New-media Webcast design* (INWeb).

Moore’s (1993&96) Transactional Distance Theory (TDT) is critically reviewed for its application to the pedagogic design of the INWeb model. Dialogue and structured are analysed to see the impact on the autonomous learner as a webcast participant. The transactional distance between the webcast presenter and the online viewers / callers is explored in the context of the webcast ‘content’ as a ‘learner-generated’ Web 2.0 dynamic resource for learning and marketing.

Three webcast models are then compared with respect to moderated text discussion, the presenter’s capacity and the type of content engagement for the online event as a key component of the new design model. These eLearning webcast models are triangulated with Garrison’s (2004) distance learning historical timeline and Pincas’ (2007) collection of pedagogic designs known as The 3P’s (Presentation, Practice and Performance).

A critique of our mini-case studies is our way to ground the eLearning theory in real-world examples of use. These webcast illustrations are presented from both a business and academic perspective.

Our summary reflections then discuss how the current webcast models may be extended if we provide a framework informed by the Evolutionary Graph Theory and Metcalfe’s Law as possible theoretical positions to tie together the professional social network and Web 2.0 elements to future interactive new-media webcast designs.

Introduction

The Institute for Work Based Learning at Middlesex University (IWBL 2009) provide undergraduate and postgraduate to doctorate level degree programmes to people in full-time work.

The programmes focus on the value of informal learning opportunities in the workplace that impact on the organisation. How can a distance learning new media eLearning event provide professionals with the ability to communicate, create knowledge (meaning making) and network?

Our answer is a marketing and eLearning design called the Work Based Learning Wednesday's Webcast project (WBL Wednesdays 2009). We researched, designed, implement and evaluated the interactive new media webcast model to blend real-time / asynchronous new media tools and eLearning pedagogies to produce an innovative learning situation for our stakeholders.

We blended an interview design with a 'viewer call-in' feature using a webcast with live text discussion and a landline conference phone. The focus is on the guest's story. This learner-generated style shifts the ownership of the narrative dialogue from the interviewer / presenter as facilitator of the questions to the guest as they share their knowledge and experience. The exchange of practice and lessons learnt makes the recordings of the event a valuable eLearning resource for many groups. The video and audio recordings also provide 'long tail' functionality by providing the marketing team with honest, powerful testimonials as well the academics having illustrations of good practice to help new learners. We have even found that the recordings are also a valuable staff development resource for our new members of staff that do not yet understand the 'big picture' of our work based learning system.

Along with the technical tools we needed a good theoretical foundation on which to build upon the interactive new media webcast model. We realised early in the project that this eLearning design is flexible and scalable but these very features need a framework for academic rigour.

Some learning theory

There is a serendipitous - the unexpected element - learning quality to meaning-making that happens in a loosely structured critical dialogue. Basiel and Bell (2007) argue that it is this unexpected element of the eLearning opportunity that provides new situations for constructing knowledge.

A practical illustration is in a particular form of PowerPoint presentation: the first part of the talk has some contextual information, then the speaker asks to the audience a question to which he has a preconceived solution. The next slide, however, is blank to put in the responses from the learners. This 'brainstorming' instructional design strategy captures the unexpected. In the next slide the speaker can then cross-reference his solutions to those of the respondents. New elements may emerge from differences in prior knowledge, cultural perspectives, level of mastery of the English language, differences in the age of the presenter / learners, capability and/or

confidence of using information and communication technology (ICT) or a variety of unexpected reasons.

A framework is essential to coordinate or script an effective scenario described above. The Dialogue and structure can claim to be linked to learner autonomy and learning outcomes in what has been termed transactional distance theory (TDT). Moore (1993 & 96) states that TDT assumes that the most profound impact on distance education is *pedagogy* and not the physical or temporal distance that separates instructor and learner. He sees the extent of transactional distance in an educational programme as a function of three variables; dialogue, structure and learner autonomy.

Informing the dialogue element of our model dialogue is *not* the number of verbal interactions that occur and transactional distance is *not* a perceived value of 'closeness'. Table 1 provides a summary of this operational definition according to Chen & Willits (1998).

Transactional Distance	Dialogue	Structure	Learner Autonomy	Learning Outcomes
<i>Distance of understanding & perception</i>	<i>Frequency of communications</i>	<i>Implementation organisation</i>	<i>Independent; Interdependence</i>	<i>Extent of learning, anticipated impact</i>

Table 1 TDT operational definition

Moore's theory (1972) evolves from basic insights regarding independent learning and learner autonomy to a multi-dimensional set of interrelated definitions, propositions and constructs. Garrison (2000) sees TDT as a basic analytical framework for understanding distance education systems:

1. *Dialogue* describes the extent to which the learner and educator are able to respond to one another or the learners between themselves. Some variables of dialogue are: the content, educational philosophy and components of the (virtual) learning environment (e.g. the media type (text vs. video) or online tools used to support communication / collaboration.

For example, dialogue is low in a one-way iPod lecture, but high in an interactive web video conference. Murphy and Collins (1997) attempted to identify real-time communication conventions through text chat systems and to recognise the need to use these protocols to promote collaboration.

2. *Structure* is a measure of an educational programme's responsiveness to the learner's individual needs. Some elements of structure are the adaptability of learning objectives, teaching strategies, and summative/formative evaluation methods used to support the eLearning experience.

Highly structured programmes are determined for the learner in a linear, content-driven design, while a loosely structured design allows flexibility to support a student-centred pedagogy (Baume 1994). A current trend in the UK is towards personalised eLearning solutions (OPUS Project 2002).

3. *Learner autonomy* is illustrated by the student sharing responsibility and ownership for the education process. An example is when a student makes a

presentation to the class face-to-face or online. In this context the learner assumes the role of teacher. Motivation and self-direction are supported by learners acting as human resources for each other (Moore 1993).

The transactional distance apothem (Table 2) shows a relationship between dialogue, structure and learner autonomy. The greater the transactional distance, the more autonomy the learner will exercise. Low transactional distance can be achieved by a large amount of dialogue and little predetermined structure.

$\text{(+)} \text{ Learner autonomy} = \text{(-)} \text{ Structure} + \text{(+)} \text{ Dialogue}$ <p style="text-align: center;">(+)= an increase, (-)= a decrease</p>

Table 2 TDT apothem

Gorsky (2005) explains that if the TDT is to be useful to distance education (and possibly education in general), the variable 'transactional distance' must correlate in a significant and meaningful way with learning outcomes.

Our proposition is that the Interactive New-media Webcast (INWeb) learning design is informed by TDT. We do not try to validate TDT as suggested in Gorsky's (2005) paper. Instead we analyse our interview scripts and actions to synthesise the TDT variables that create an eLearning event where the stakeholders in the webcast (interviewer, interviewee, audience and text moderator) can engage with a strong degree of autonomy.

In Gorsky's terms if TDT is

'a psychological and communication space to be crossed, a space of potential misunderstanding between the inputs of instructor [webcast presenter] and those of the learner,' as Moore (1993) suggests, then *'transactional distance can be measured as student misunderstanding'* (2005: p. 8).

This comparison of the TDT components can be represented as the tautology:
"As understanding increases, misunderstanding decreases".

Our second proposition arising from the webcast project is that this misunderstanding is decreased when the eLearning experience is mediated through peers talking to peers. This dialogue becomes the learner-generated content.

Social constructivists believe that people construct their knowledge through engagement with others (Bruner, 1966). It is in the act of the (webcast) interactions that meaning is made. Interactive New-media Webcast (INWeb) designs promote the opportunity for critical discourse to occur at a distance using blended new media resources. Therefore, new knowledge is constructed by the participants in the webcast event by making new connections from their prior knowledge to unexpected informal learning opportunities.

Models of engagement

This section of the paper provides some models of engagement as a descriptive not prescriptive explanation. There are at least four ways that the participants in a webcast, webinar or Interactive New-media Webcast (INWeb) can communicate. We will critically review the strengths and weaknesses of each pedagogic model.

Table 3 summarises some of the components such as the text moderator's role, the presenter's capacity and the relationship of content to the eLearning model.

eLearning model	Text Discussion Moderated activity	Presenter's capacity	Content type
Webcast -'cast' is one-way	None to Low	Presenter as teachers	Information
Webinar -'seminar' is two-way	Medium	Presenter as seminar tutor	Information-led Some discussion available
Interactive New-media Webcast (INWeb) '3D discussion'/time	High	Presenter as interviewer	Application of knowledge seen through peer-to-peer stories – anecdotal knowledge

Table 3 Webcast models and components

Garrison (2004) sees a 'correspondence model' as a stage-one level of distance learning design. The first generation - industrial era *webcast* approach shares characteristics such as learning in isolation and communicating privately with the tutor. There may be no interaction with the other audience members or learners. The webcast model is like the BBC/Open University's old broadcast design. Information is transmitted one-way to the generally passive audience which Garrison (2004) identifies as second generation.

There may be no person designated in the role of a moderator to promote discussion about the topic or issue addressed during the webcast lecture. Some webcast pedagogic designs do encourage follow-up activities that may involve live or asynchronous text discussions. The speaker or presenter is seen in a teacher / lecturer's role to control the flow of the content to the learner. This content may be media rich with a blend of text, graphics and video to help inform and motivate the students.

Pincas (2007) describes this 'classic lecture style' in terms of the 3P's (Presentation for content, Practice for activity and Performance for assessment). In this pedagogic structure the content leads the learning design. A follow-up activity reinforces the understanding with a final summative assessment to demonstrate mastery.

A *webinar* tries to encourage a critical dialogue between the presenter and the audience, much in the same way a face-to-face seminar may be conducted. The webinar's two-way interaction may be facilitated by a text discussion moderator. The primary dialogue is between the presenter and audience, but the text discussion board provides the opportunity for 'classroom whispers' or passing a note in class. The moderator can help steer the questions to the presenter as needed. The webinar text moderator is a new and evolving role in real-time online learning. The new facilitator's role in our project is still under development and can vary in the pedagogic balance of each eLearning event's design. A webinar presentation does require a script to lead the navigation through the flow of the learning narrative as it is not restricted to the content of the talk slides. There lies the possibility to get some unexpected or a more informal discussion.

The ‘3P’s learning designs’ introduced earlier identifies a seminar as a problem-based model which promotes virtual community discussions (Pincas, 2007). The webinar model moves us into an interesting blend of online communication options.

The *interactive new media webcast* model takes us into a ‘3D discussion style’ as it moves from the webinar’s two-way discussion to explore a blending of live and recorded events in web video, audio and text.

In this interactive model the role of the text discussion moderator is critical to address the audience’s questions and comments while the presenter is taking the role of ‘chat show host’ to interview the guest speaker. The ‘content’ of the online session becomes the informal discussion between the webcast host and guest. The audience provide the unexpected, serendipitous element to the webcast design.

Garrison (2004) would place this last webcast model in the 3rd and 4th generation distance learning through a blended learning approach to computer mediated conferencing. In our Work Based Learning Wednesdays Webcast model discussed in the next section, we used Adobe Connect as the web video conference platform and a landline conference phone to provide access to any audience members with firewall security issues.

Mini-case studies

This section of the paper grounds the previous theoretical discussion and models with some real-world examples. We show the implementation of some of the webcast variation designs as instantiations of the online pedagogic principles. The three general models of webcast, webinar and interactive new media webcast are summarised in Table 4 and broken into business and academic categories. The samples provided are reviewed critically from the two perspectives; business and academic approaches.

Webcast		Webinar		Interactive New-media Webcast (INWeb)	
Business	Academic	Business	Academic	Business	Academic
Adobe – Products	RSA – Lectures	Learning & Skills Group Professional Network	Glyndwr University, eLearning Module	WBL Wednesdays Marketing	WBL Wednesdays Learning
<i>Learning design</i>	<i>Learning design</i>	<i>Learning design</i>	<i>Learning design</i>	<i>Learning design</i>	<i>Learning design</i>
Product presentations about new trends in industry	Lectures to live audience sent out and recorded	PowerPoint voice talks. Professional moderator with text discussion for large group size. Annual f2f conference	Limited class size. Tutor as moderator with audio option for questions. Module reading with follow-up activity.	Guest brings in audience. Organisational networks can share info and partner in R&D projects.	Students tell students tips on success and learning at distance advice.

Table 4 Business and academic exemplars

The three models (Webcast, Webinar and INWeb) each have two threads. Each is examined in relation to the related learning design. The business focus looks at the examples of product exposure and profession related discussion from a marketing perspective. The academic perspective examines the lectures and interactive eLearning opportunity pedagogic designs using Web 1 and 2.0 systems and approaches.

Business exemplars –

There are three business exemplars. The business example for the webcast is the Adobe software webcasts on their software products. There is a one-way presentation on the features and toolsets for the Adobe system. This is also reinforced by the Adobe TV (Adobe TV 2009) website and video eLearning resources.

The Webinar model focuses on the knowledge domain expert as presenter / lecturer. They usually give a PowerPoint talk (generally audio only) to a select professional audience. The Learning and Skills Group provides the audience a professionally moderated real-time text discussion option to promote interactivity (Figure 1). In the Interactive New-media Webcast (INWeb) model the recording of live events creates marketing testimonials. This interactive web scenario sees a peer-to-peer model with successful business students or, in Work Based Learning (WBL) terms, ‘candidates’ telling their stories of successful research and development (R & D) projects impacting on the organisation. We also hear about ‘success tips’ for distance and WBL learners.

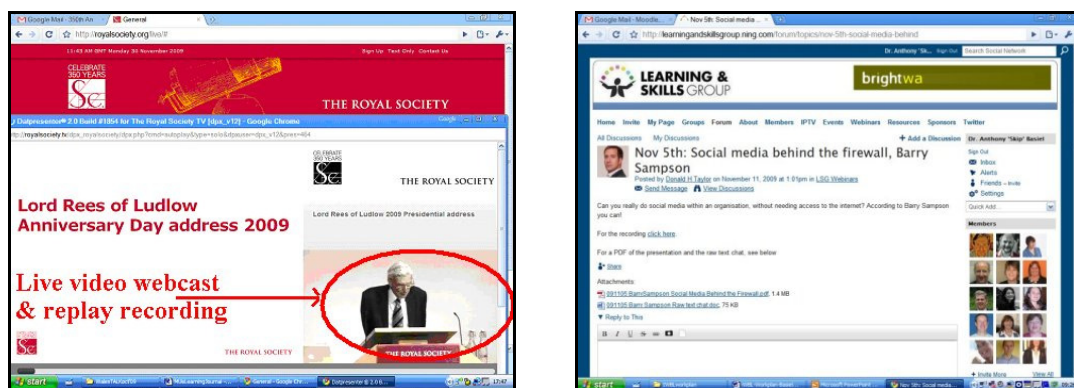


Figure 1 RSA & Learning Skills Group screen grab examples.

Academic exemplars –

In the Academic or Higher Education Institutional (HEI) context we also look at the three variations of webcasting. Here the shift is from commercial product to intellectual capital in a work based learning context (Garnett 2001).

The academic webcast focuses on the subject context in the online discussion as seen in the RSA example (Figure 1). The expert speaker tries to engage the audience with the information of the presentation and not the business side of the contextual discourse.

In the interactive webinar we see a focus on the online version of the ‘Oxbridge model’ of HE learning in the UK context. Small group discussions are done by web video and audio much like a face-to-face seminar model. Live text can also simulate

the classroom whispers or note passing occurring during the lecture. A good sample is the webinars done in Glyndwr University, Wales (Figure 2). Participants can use audio VoIP (voice over internet protocol) to speak to the presenter.

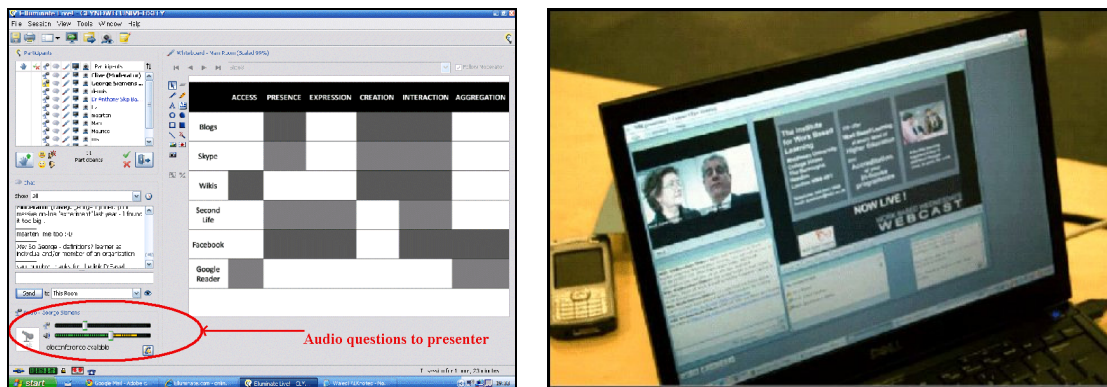


Figure 2 Webinars and Interactive New-media webcasts

The .net magazine awards (2009) website is a showcase of ‘vodcasts’ of the year. In this case the winners DIGGNATION (2009) is a web TV show that blends humour, interesting content and high production value. The magazine reminds us that a successful webcast / vodcast doesn’t mean that you have to be a big organisation or even a big audience. It may be that the online event just helps people.

These mini-case studies have illustrated some of the elements previously presented in the transactional distance theory section. Elements of structure and dialogue vary in the webcast models to support audience engagement and learner autonomy. The final section of this paper summarises these eLearning pedagogic design elements and provides predictions of future frameworks.

Concluding discussions

Our summary discussion visualises our previous webcast samples in a summary matrix. Next, we look at how these online models can be applied to a Pre-At-Post (PAP) model. Finally, Evolutionary Graph Theory is put forward as a possible theoretical framework to progress eLearning through webcasts (Guardian, 2009) which is further supported by Metcalfe’s law in Computing Science (Hendler, 2007).

Figure 3 provides a cross comparison summary of our webcast models in relation to new-media elements and the interactivity of the presenter and audience.

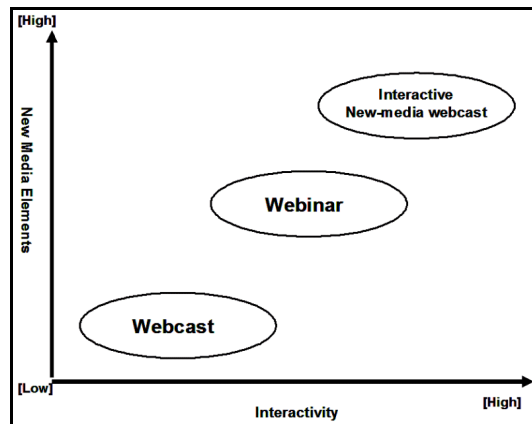


Figure 3 Summary webcast model matrix

The summary is not meant to be a value judgement to say, for example, that webcasts are weaker eLearning designs. There are times when a transmission model is appropriate for introducing procedural knowledge. The spectrum assists Learning Technologists to select options to pick the elements of new-media webcast design that help get their message to their target audience.

A second factor to consider in these webcast designs focuses on the structure of associated activities around the live event. This can be expressed as the Pre-At-Post (PAP) model (PAP 2009). Promotion before the live webcast event happens is essential to generate an audience. Promotion may be done using a variety of advertising techniques such as email distribution lists. We have used html email newsletters. These contain an introductory context of the webcast given to the audience to prepare them for the structure and topics addressed. The webmail also contains links to past video clips of events and other resources.

The actual webcast can be captured. Many of the current commercial webcast software systems include the capacity to record the audio, video and live text discussions as a Flash video file. These may be viewed online or in some systems, such as Adobe Connect, the .flv files can be downloaded to edit the video and sound. Additionally, these recordings become a valuable online resource for learning and marketing. If organised properly these new-media eLearning and marketing resources can be associated with Web 2.0 meta-tags so that they are searchable (Google 2009). In our project we find the independent video and audio recordings more flexible for teaching and marketing purposes.

After the live online events, follow-up discussion and networking opportunities should be built into the design. These events may be face-to-face or asynchronously online. It is valuable to keep the energy from the webcast alive with a 'call to action'. As Jennings (2009) declares it is not the content or even the process of learning which is paramount, but the impact and application (or practice) of the knowledge to the organisation.

It is fitting to end this paper with a theoretical framework that can be synthesised to an eLearning context, since professional social networking (PSN) is dominating the eLearning news recently. We propose that Evolutionary Graph Theory provides a systematic approach to map out PSNs as they evolve (Kumar R. 2006).

Lieberman developed the Evolutionary graph theory with Harvard mathematics professor Martin Nowak, who helped to lay its foundation through the observation that most evolutionary theory deals with populations that have either simple shapes or no structure at all. The world around us is full of evolving systems with all kinds of internal structure – whether it's the networks of cells present in the human body or the social networks that occur in cyberspace.

However, Evolutionary Graph Theory provides a quantitative language that describes how *replicators* behave on networks which may lead to new ways to quantify the value of influence on the web. According to Lieberman, "A *replicator* is an entity, be it an organism, a computer virus, or even an idea, that can somehow make copies of itself. Networks are a way of thinking about where the new copy can go." (Guardian, 2009)

When we map over this theory to the context of webcasting models we can see how human networks of knowledge generation can support the replication process in several ways; expanding the network and expanding the knowledge base. Figure 4 illustrates how we can grow from the local core team of webcast stakeholders to the wider audience of participants within the organisation (e.g. Middlesex University) and the wider association of professional organisations (e.g. Alumni and related business associates).

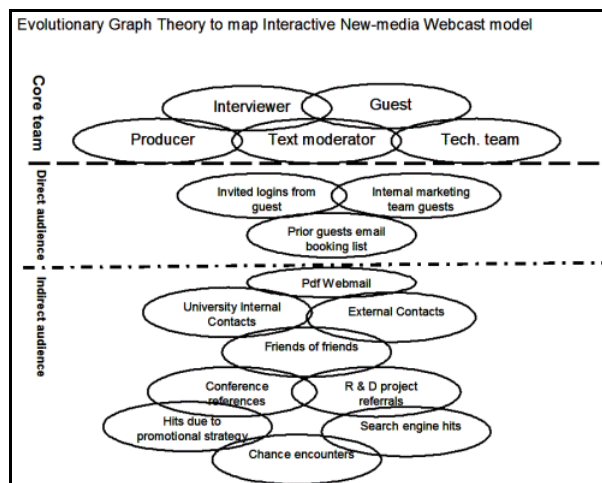


Figure 4 Evolutionary graph theory mapped to the INWebcast model

We can see in Figure 5 a visualisation of the connections between the various network layers of stakeholders, audience participants, etc. through to a summary form of the data or webcast. The process can also be illustrated in a familiar software example of a set of Excel spreadsheets that each contain data (or a collection of networked knowledge) and using the copy and paste feature to pass on the data through the various worksheets to a final summary worksheet.

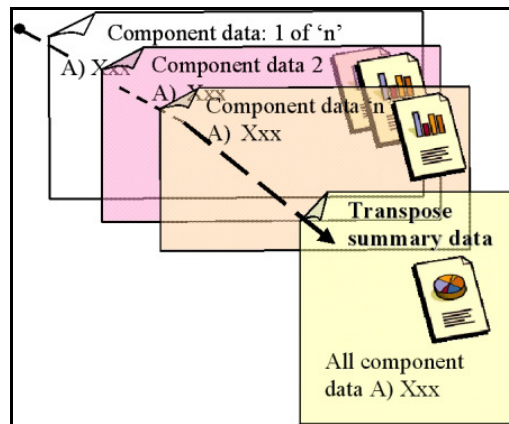


Figure 5 connecting the network layers

We can also synthesise Metcalfe's law of computer networks into our eLearning webcast framework. Hendler (2007) sees the power of the Web enhanced through the network effect produced as resources linked to each other with the value determined by Metcalfe's law which states the value of a telecommunications network is proportional to the square of the number of connected users of the system (Wikipedia 2009).

In Web 2.0 applications, much of that effect is delivered through social linkages realised via social networks online. Unfortunately, the associated semantics for Web 2.0 applications, delivered through tagging, is generally minimally hierarchical and sparsely linked. The Semantic Web suffers from the opposite problem. Semantic Web information, delivered through ontologies of varying amounts of expressivity, is linked to other terms (within or between resources) creating a link space in the semantic realm (Hendler J 2007).

Summary

In summary we have provided context for models of Webcasts and Webinars from the perspective of the Institute for Work Based Learning (IWBL) at Middlesex University. We suggest innovative technical and pedagogic elements of these eLearning and marketing models synthesised in the Interactive New-media Webcast design (INWeb).

Moore's (1993&96) Transactional Distance Theory (TDT) was critically reviewed to its application to the pedagogic design for the INWeb model. Dialogue and structured were analysed to illustrate the impact on the autonomous learner as a webcast participant. The transactional distance between the webcast presenter and the online viewers / callers was explored in the context of the webcast 'content' being a 'learner-generated' Web 2.0 dynamic resource for learning and marketing.

Three webcast models were compared with respect to moderated text discussion, the presenter's capacity and the type of content engagement for the online event. These eLearning webcast models were triangulated with Garrison's (2004) distance learning historical timeline and Pincas' (2007) collection of 3P's pedagogic designs.

Several mini-case studies were then critiqued as a way to ground the eLearning theory in some real-world examples of use. These case studies were then reviewed from a business and academic perspective.

Our concluding reflections discussed how the current webcast models may be extended if we provide further framework towards a case-law. The Evolutionary Graph Theory and Metcalfe's Law were suggested as possible theoretical positions to tie together the professional social network and Web 2.0 elements to future interactive new-media webcast designs.

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Note: all web references were checked in December 2009

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