

Part D Phenomenographic Research and Analysis

Professional development for e-learning: A framework for the New Zealand tertiary education sector

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Overview of the Tertiary E-learning Research Project and Phenomenographic Report

Introduction

This research study forms one part of a tertiary e-learning research project (supported by the Tertiary e-Learning Research Fund - TeLRF), 'Professional development for e-learning in the tertiary sector', funded by the New Zealand Ministry of Education and conducted by the University of Otago. The project team comprises Professor Kerry Shephard, Dr Sarah Stein and Irene Harris. The overall project aim is the development of a professional development framework for teachers and teacher support staff in the New Zealand tertiary sector. The project builds upon earlier New Zealand project work in the area and will also work in collaboration with a current tertiary e-learning research project led by Massey University.

In the first stage of this project we conducted an international environmental scan which examined approaches to e-learning and professional development programmes which are building e-learning capabilities in the tertiary sector. In particular a number of tools, policies and practices that have been and are being used in Australia, the UK and New Zealand were examined with a view to informing the development of a framework for professional development. This review helped us to identify and illustrate trends, issues, strategies and success factors and to consider their relevance for the New Zealand tertiary sector. In our international environmental scan we concluded that there are actually a limited range of 'futures' for professional development for e-learning. In terms of influencing individual teachers, academic departments, institutions or segments of the tertiary sector those who seek to influence can do so by:

- leading the way and providing direction;
- persuasion – by providing incentives, reward and recognition;
- coercion – with obligations and penalties.

At the end of our international environmental scan an initial outline for a framework for professional development was based on combinations of practitioner participation, leading the way and incentives which we argued could progressively lead to a development spiral. In the later stages of this project we intend to develop the ideas which underpin this spiral as part of our recommendations for a professional development framework.

The second stage of this project has involved empirical research which is also intended to inform the framework we will recommend. For this part of the project we have used a phenomenographic research approach to determine how New Zealand tertiary teachers and teaching-support staff conceptualise their role in relation to e-learning and their need for professional development. The research included an e-mail survey targeting teaching and support staff from a small but representative number of tertiary institutions and a number of follow-up interviews.

The research seeks to identify the variation in conceptions of e-learning and professional development held by teachers and teaching-support staff across tertiary education organisations in New Zealand. This should provide a foundation for judging how the professional development framework could best be applied to support the development of teachers' and support-staff baseline knowledge and continuing

expansion in capability in e-learning across a variety of New Zealand tertiary education organisation contexts. The results from this phenomenographic research and our international environmental scan will therefore inform the next stage of the project which is the development of a framework for professional development for e-learning. This work will be carried out in collaboration with the Massey project team in order to recommend the most effective framework for embedding staff development for e-learning within New Zealand tertiary education organisations to support the continuous improvement of e-learning capabilities.

Structure of the report

- Section 1:** Reviews the Research Philosophy, Design and Methods used.
- Section 2:** Presents the results of the research including the categories of description together with exemplars from the data to illustrate each category.
- Section 3:** Discussion, Implications and Next Steps.

1. Research Philosophy, Design and Methods

1.1. *Research philosophy*

Phenomenographic research approaches are about making statements about the relationship that exists between a person and a phenomenon. Phenomenographers hold certain assumptions about the nature of knowledge. For them, knowledge is viewed as relational, that is, knowledge is not completely independent, objective or separate from an individual. It is also not wholly dependent upon an individual's interpretation either (Svensson, 1994). Instead, knowledge is the result of the relationship that an individual has with a phenomenon. In other words, the meaning of a phenomenon is created as a result of the relationship that exists between it as an external reality and the person as the interpreter (Marton, 1992; Svensson, 1994). Phenomenographic research approaches result in statements that elucidate this experienced relationship between persons and phenomena (Marton, 1989).

Where the relationship is concerned, phenomenographic research approaches are founded on the assumption that individuals experience the world in different and unique ways (Säljo, 1988). A person's unique set of life circumstances, including the person's purpose and intent for accessing and utilising knowledge, will contribute to the sense that person makes of knowledge.

Phenomenographic research approaches aim therefore, to identify the varying conceptions individuals can have of the same concept. The internal relationship between the person and the phenomenon is thus the focus of such studies. In this study the aim is to describe

what [e-learning] is seen as, what [it] appear[s] to be, what [its] potentially differing meanings are, how [it is] delimited from - and related to - [its] context, as well as other phenomena, how [its] parts are delimited and related to each other, as well as to the whole; what is figural and what is grounded, what is focused and what is not; from what point of view [e-learning] is seen, and so on (Marton, 1994, p. 7).

The outcome of phenomenographic research is to identify the varying conceptions held of the chosen phenomenon across the population under examination. There are usually a limited number of these qualitatively different conceptions held within a population (Renström, Andersson & Marton, 1990), and they can be identified by gathering data through open forms of data collection to produce what are called categories of description (Marton, 1981). Each category is the common meaning of the perceived meanings of a phenomenon, grouped together (Svensson, 1994).

This research approach is the result of a second order perspective (Johansson, Marton & Svensson, 1985), that is, these essential meanings, expressed through categories of description, are the researcher's interpretations of others' interpretations. The categories are regarded as discoveries in themselves (Johansson et al, 1985; Marton, 1981), revealed by the researcher through analysis of data gathered through open ended data gathering instruments which allow individuals to express their ideas and viewpoints. Analysis involves the researcher looking beyond and beneath the words to seek images which can coalesce into categories or groups of similar notions, that is, the categories of description. The categories, by capturing and elucidating the varying conceptions of a phenomenon that exist across a population, are thus the intended results of phenomenographic studies. Often though, in addition, finding the

connections, links or relationships across the categories becomes a further layer of analysis that phenomenographers apply (Lybeck, Marton, Strömdahl, & Tullberg, 1988). Explicating the logical relationships or connections through what is termed 'outcome space', can provide deeper insights into both the makeup of the categories, as well as into how the categories of description together reveal the varying facets of a population's conceptualisation of the phenomenon under examination.

The phenomenographic research approach outlined here was adopted for this study as conceptions of learning and conceptions of teaching studies are well known and have been extremely influential in education research and development work.

1.2. *Overview of research design and methods*

In this study we have investigated tertiary teachers' and teaching support staff conceptions of e-learning and professional development for e-learning.

Teachers and teaching-support staff from selected tertiary education organisations were invited to respond to a short email questionnaire survey. As well as some demographic information, respondents were asked to provide answers to open-ended, qualitative questions about their broad thoughts about e-learning and e-learning professional development, and provide responses to statements about the availability and quality of support provided/available for e-learning professional development. Participants were encouraged to write as much as possible and were encouraged to use free thought/stream of consciousness and notes.

The survey questions included were;

Demographic questions

- 1 Please state the type of tertiary institution you work in.
- 2 How long have you been employed in the tertiary sector?
- 3 Do you have a teaching role?
- 4 Do you have a teaching support role?
- 5 Please indicate which ethnicity you most closely identify with.

Open-ended questions/statements

- 6 When you think of teaching that includes e-learning, what comes to mind?
- 7 When you think of e-learning what comes to mind?
- 8 When you think of professional development, to support teaching that includes e-learning, what comes to mind?
- 9 I have a clear idea about the support that I need to help me with my teaching using e-learning and I also understand the range of other support that is available to me and my teaching colleagues from within the institution and from elsewhere.
- 10 I do not think that progress in e-learning is significantly limited by lack of support for teachers. There is a lot of support available and other factors limit progress.
- 11 I think that I can directly support teachers by spending time helping them e.g. to produce resources. I also indirectly support teachers' professional development through training sessions. I think that the balance between direct and indirect support is about right. I cannot think of any particular form of support that is missing.
- 12 Everyone who asks for my help has had different experiences and has different capabilities and yet they all seem to make progress and discover something new.
- 13 Add other comments about professional development for e-learning here.
- 14 If you are willing to participate in an interview to provide us with more information about your views, we invite you to provide us with your contact details.

Respondents to the email survey were also invited to participate in an interview (approximately 30 minutes in length; recorded and transcribed; face to face or via telephone) during which we were able to probe the conceptions expressed in the

written survey response further. Through the interview we were able to ask the participants to elaborate on the responses they provided in the survey thereby providing more in-depth responses than the email survey could elicit.

1.3. Participants and Data sources

1.3.1. Questionnaire survey

An explanatory e-mail with a link to the on-line questionnaire survey was sent to known contacts, at a range of tertiary institutions, who were asked to circulate it to their colleagues within their department or more widely if possible. These institutions included 2 Universities, 3 Polytechnics, all the Industry Training Organisation (ITO) Chief Executive Officers, a Wananga and a Private Training Establishment. Overall 114 responses were received and the demographic information for participants is shown in table 2.

Q1 Type of tertiary institution type	Response total	Response percent
Wananga	1	1
University	79	69
Polytechnic	16	14
Industry Training Organisation	11	9.5
Private Training Organisation	4	3.5
Other	3	3
Total respondents	114	100
Q2 Time employed in the tertiary sector	Response total	Response percent
1-3 years	22	19
3-5 years	16	14
5-10 years	23	20
10-15 years	20	18
More than 15 years	33	29
Total respondents	114	100
Q3 Do you have a teaching role?	Response total	Response percent
Yes	86	75
No	28	25
Total respondents	114	100
Q4 Do you have a teaching support role	Response total	Response percent
Yes	38	33
No	76	67
Total respondents	114	100
Q5 Please indicate which ethnicity you most closely identify with.	Response total	Response percent
New Zealand Maori	10	9
Pakeha / Caucasian	88	78.5
Pacific Islander	1	1
Asian	4	3.5
Other	9	8
Total Respondents	112	100

Table 2 Demographic details of respondents

The responses to the open-ended survey questions provided us with interesting insights into the range of conceptions held. These ideas were further explored in the

follow up interviews and quotes were also drawn upon in the analysis to identify categories described in Section 2.

1.3.2. Interviews

In total 37 respondents volunteered for a follow up interview. We selected 20 to represent a cross section of experience across tertiary education organisations and then set up the face to face or telephone interviews. In selecting volunteer interviewees we also took account of experience, expressed conceptions, discipline areas and ethnicity as indicated in the questionnaire responses. As per our project plan 20 interviews were conducted with 12 staff from Universities, 7 from the Polytechnic sector and 1 from an Adult Training Provider.

A semi-structured approach was adopted for the interviews where our aim was to ask the participants to elaborate on the responses they provided in the survey thereby providing more in-depth responses than the email survey may have elicited. Our aim was to encourage participants to talk freely about their experience and ideas and also to encourage them to reflect on their experiences of e-learning and professional development.

The broad areas of focus for the interviews were:

- common/general understanding of the word “e-learning” and its nature;
- ‘doing’ e-learning;
- human role, situational/environmental/cultural influences and change;
- experience of e-learning projects/practices, implementation and support.

Within these broad areas we identified a number of question areas and these included:

- What does the word ‘e-learning’ mean to you? What does the word mean in common use?
- Give examples of e-learning you came into contact with recently. Why do you classify them in that way?
- How do you work with e-learning?
- What does it mean when you say that someone is ‘teaching using e-learning’?
- What sort of people are teachers who use e-learning? What skills do they have?
- What can go wrong with e-learning training/professional development?
- What about the staff who are not interested in e-learning. What could be done to get them involved?
- How does e-learning play a part in the teaching and learning of an institution?
- How do institutional communities change/advance in the way they use e-learning to enhance teaching and learning? What factors influence these changes?
- How can teachers’ e-learning knowledge and practice be accelerated?
- What can go wrong with e-learning projects? Why do things go wrong? To what can you attribute the failure to achieve what is intended?

1.4. *Details of approach to analysis*

After all survey and interview data had been collected they were separated from identification information. Analysis of the data was done phenomenographically (searching for themes and commonalities within the data), to identify the variety of

conceptions of e-learning and professional development for e-learning held by tertiary education organisation teaching staff and teaching-support staff. Conceptions were then sorted and classified into categories of description. The categories – the set of descriptions of the different ways the population surveyed conceptualises professional development for e-learning are described in detail in Section 2 of this report.

After interviews (an instrument widely used to gather data in phenomenographic research and often semi-structured in form) were transcribed quotes from the responses were selected according to their relevance, and identified. These then, make up the data pool. The quotes were then examined as entities of meaning in themselves, separate from the individuals who made the responses. These entities called "ideas" or "defining ideas" which from hereon, constitute the categories that finally emerge.

The next phase of analysis involves interpretation of the quotes in order to identify similar defining ideas. These groups of similar ideas become categories, singled out on the basis of the differences between them. Much sorting and resorting of quotes occurs throughout the process to ensure that the categories are clearly defined and explicit in their differences. Finally, a description for each of the categories is developed, accompanied by quotes from the data pool to provide supporting evidence.

1.5. *Reliability and validity*

The nature of phenomenographical analysis means that conceptions, viewpoints or emphases focussed on by the researcher can easily become those highlighted through the resultant categories. At the same time, this does not mean that the researcher places frameworks upon the subjects' ideas. It becomes necessary therefore, to examine how validity and reliability are achieved.

The issue of reliability is addressed through ensuring that the categories are easily recognizable by others (Marton, 1986; Säljo, 1988). Beaty (1987) suggests that a group of independent judges can be used to establish reliability. Similarly, Johansson et al. (1985) and Säljo, (1988) recommend an independent co-judge examine the transcripts of the responses to determine reliability of categories. This incorporation of a co-judge involves a person other than the researcher gaining knowledge of the researcher's categorization process and perspective, and judging whether the classifications would be made in a similar way.

Co-judging is a check of the communicability of categories and thus gives the researcher information that someone else can see the same differences in the material as he or she has done. (Säljo, 1988, p. 45)

In this research two colleagues of the researcher confirmed the categories created by gaining a sense of the written pieces through viewing a sample of the responses and discussing with the researcher the main ideas that emerged. There was clear agreement with the researcher by these co-judges. Johansson et al. (1985) report that inter-judge reliability figures should be within the range of 75% to 100%. Säljo (1988) suggests that they should be in the order of 80% to 90%.

Validity can be achieved through showing the appropriateness of the internal logic of the categories (Marton, 1986; Säljo, 1988). This means that categories can be said to be valid if their logical links illustrate how the differing conceptions of reality relate to each other in specific ways, "What separates conceptions of a phenomenon is what is assumed to be in need of being explained" (Säljo, 1988, p. 46). In this study, the outcome spaces described in Section 3 *Discussion, Implications and Next Steps*

illustrate logical links between the differing conceptions held about experiences of e-learning and e-learning professional development. That is, links across the categories are highlighted.

2. Results

In this section we present the categories of description for each of the two phenomena under consideration, namely, *e-learning* and *e-learning professional development*. Each category is described and comments drawn from the data set (made up of the combined data from interviews and survey) are used to illustrate its key features.

2.1. *Categories of description - conceptions of e-learning*

Category A E-learning is seen as tools, equipment, hardware and software

In this category expressions of e-learning emphasise the variety and type of technologies available to support teaching and learning.

There is a particular focus on the existence of the tools, with many comments simply listing the various technologies available. For example,

[e-learning] is a tool to support learning

e-learning is any learning where ICTs are involved to assist and enrich the learning.

Electronic media, audio conferences, BB, linking students, creating a learning community and a stimulating environment.

Online courses, websites, discussion forums, web video, DVD, interactive web learning tools, web surveys, online submission of assessment, online assessment, email, e-books, electronic databases, electronic materials (including books, articles, course materials), 24/7 access.

Blackboard; intranet; whole classes on computers; smart boards; self-directed learning; students being able to access teaching and learning materials; web-links; synchronous and asynchronous discussion

Computer based lecture notes, and learning sources from the internet. CD used in classrooms. Consultation by emails. BBS discussion forums, etc.

Comments also included reference to the technologies and, in general terms, to their use in the support of teaching and learning. Overall, however, a lesser emphasis is given to how the technologies are used than is placed upon the variety and type of technology available. For example,

I think of students learning using electronic technologies (ICTs) to facilitate what they learn and how they learn it.

E-learning is incorporating the use of technology into teaching. By this I mean the inclusion of simulations, quizzes, student discussion forums that add something to their learning experience. Learning management systems are useful, convenient tools but I don't think they necessarily improve learning if they are only used as a repository for information. However, using an LMS is often the first step for lecturing staff into the world of e-learning.

[E-learning is] a way of supplementing face-to-face contact with students, with contact via computer; to provide material to students via computer; to provide means for students to assess how well they are doing. By 'computer' I mean things such as Blackboard, blogs, electronic discussion groups...

So, to me, e-learning is computerised based learning. So it's gone from paper to doing it through the computer.

Yes, a tool...it may be that the course is completely taught using technology, rather than any face-to-face interaction...I guess e-learning then, is just where the learning is involving technology, either partially or fully

Because e-learning is about enhancing teaching and learning through the use of ICTs etc then you have to be reasonably savvy with the technologies available and know about the pedagogy.

Using all form of electronic media to assist learning e.g. e-mail, video, audio, web material etc etc

I think e-learning is learning, supported and facilitated by digital technologies and Internet resources in learning environments wherever they may be. Digital technologies can include multimedia resources from online course/training/education material in printable format, CD's, DVD's, videos, graphics, animation and audio files. Podcasting is a technology that can incorporate both audio and/or video files as learning resources. Devices which enable the use of digital material include the cellphone, Personal Digital Assistants (PDA), iPods and MP3 players, computers of all types, a range of 'compact disc' players and some game consoles.

Teaching that makes use of the interactive resources of the internet or that are taught through the internet. Also those that make use of blackboard, power-point and other computer software.

Category B E-learning is seen as a means through which learning interaction is facilitated

This category expresses experiences of e-learning as interaction between and among students, teachers and the course material.

Comments described how students' interactions and communication occur and then how e-learning supports these activities.

[An example of something that is not e-learning is] Those where there's not the opportunity to interact, to ask questions.

Using electronic media to facilitate peer interaction by the learners.

..we use [e-learning] to really bring learning communities together.

An interweaving of tuition where the student is sometimes relating directly to the tutor and sometimes independently studying electronic materials that support his/her learning.

Technologies, students and teachers all have roles in facilitating and supporting communication and interaction to varying degrees. The role of the teacher in setting up learning situations using the technologies is given prominence, with some recognition of how teacher and student roles have altered from more traditional face to face teaching contexts. For example,

I realised you'd have to set it up with discussion questions and allocate the questions, you know, at the end of each session, for the next session and make

sure that you had people that were going to report back and try and get them to sort of generate discussion throughout that time...

[E-learning means] reading lots of email! - the challenge of getting people to contribute to discussion topics - the challenge of how to design interaction so it contributes to assessment (experience suggests interaction must contribute to assessment for students to really get involved)

[Some students can] think about it too much and, and when you write it, you kind of write it so that it's quite easy to follow and not ambiguous and you're trying to cover all the little questions they could have.

But actually to deal with students in this other way, it can be more time consuming in some ways, but it also can be sort of more draining because you're dealing with things that you can't plan for as much in a lecture because in a lecture, you're totally in control. But when you start getting them to do things and you're observing and you're thinking, oh, that's a wacky idea. I know it's wrong but I can't just say it's a wacky idea. I've got to sort of [craft my words] Yes, and it's harder. It's much harder. So when you're letting them do their independent work that's got lots of benefits but, as I said, you can't just sort of abandon them and say, well, the experience itself would be great because I mean, it will be good to do it but you can't have them going away and say, for example, getting wrong ideas about the discipline, the core ideas in the discipline.

I think that, again, when people are doing the traditional lectures, they say, oh, you know, you're taking the easy way out [by using e-learning]. You're not, because I have a mailbox full of emails from students, even though they're doing this, because they say, oh, look, you know, am I on the right lines here and sometimes they are and sometimes they're not. Now, it's pointless them having this bad experience of saying, I really crashed out in this course because I didn't have confidence, then I just, you know, hid. You know, I turned up but I didn't participate.

I guess the biggest change from face-to-face, which I do as well, is you can kind of do it off the cuff a bit more. You can kind of sense what the class wants to talk about and you can go on tangents. Where with e-learning, you really have to think, you have to plan so far ahead, that you have to come with every little nuance or every little question and kind of package it in.

Category C E-learning is seen as learning

In this category, the idea of learning is foregrounded and the technologies are given a less important position within expressions of perspectives. While technologies are mentioned, as being facilitators or support mechanisms for learning and teaching, they are not described or discussed to the same depth as they are in Category B.

Learning is learning and e-learning is a particular focus at the moment on the use of technology to support learning. Now, in time, in most things, the E has been stuck on the front, the E will disappear, but I think it's perfectly valid at this stage to emphasise the E because, in fact, we're trying to get some changes in the way that learning and teaching is done.

I think wanting to better engage with the students, is a driver. I think, sometimes, e-learning still comes in the category of an attempt to save time or

make things more efficient which is, in some ways, perhaps, a justifiable thing as long as it's the quality of the e-learning experience isn't sacrificed

I think of teachers making use of information and communication technologies to help them to teach their students, and to plan for their teaching. I think of teaching that capitalizes upon the opportunities that these technologies provide to facilitate what they want to do as teachers better and to make the learning environment more easily accessible by students and more interesting than paper based resource supported teaching might be.

Learning happens when communication happens.

I think they've really got to think again about the whole process of learning and how teaching facilitates that and the opportunities that come up when you can do things in very different ways with technology, with the help of technology. In some cases, technology may be no help at all. In other cases, it may make a total difference to how you can approach supporting the learning process. So I think teachers have to be very open to the opportunities.

In some expressions of experience, the 'e' in e-learning is either consciously or unconsciously extracted from discussion or thought. In fact, the 'e' can be regarded as drawing attention away from that which teachers and support staff should be focussing on, namely, learning. How learning happens in a broad and generic sense is highlighted, for example, through reference to theories and practices of learning and teaching that are applicable in any context/setting. A key feature of this aspect of the category is that expressions may carry with them a sense of dislike for the term 'e-learning' and the influence its can have on how e-learning is understood and applied.

I think e-learning is one strategy for learning. I don't think it should be at the expense of others.

Could drop the 'e'

'e' may equal the computer but that doesn't necessarily equal learning.

[When I think of e-learning, I think of] social constructivist flexibility, interactivity, communication.

[When I think of e-learning, I think of] learning environments, teachers working with students - too easy to expect autonomous work - are these students capable of that and is this the best way for them to learn constructivism - zone of proximal development - learning more with others

Learning generally

Challenge of linking pedagogy and technique

A different approach to learning

I can see no benefit to having the E because however one is learning ... I mean we don't, for example, you don't talk about, mechanical learning for people who learn how to drive a digger or a truck. They just learn how to do it. ...so adding the E, what does it tell us? Electronic learning. Well, you're not learning electronically. You're learning exactly the way human beings have always learned. There's nothing different going on. You're using different, potentially, you're using different tools to do what people did a hundred years ago, but so what.

There is an underlying theme about students becoming responsible and independent learners, being freed up from the teacher. Again, learning is the prominent feature in this conceptualisation, with references to various technologies being integrated.

... when I was [teaching Paper X] which was supposed to be focused on online learning, it was the fact that the students were getting information themselves from what I'd set up on Blackboard. They were sort of discussing that maybe, in chat rooms, discussion boards and that I would be seeing how they were sort of searching for information, discussing it with other people. But it was all, if you like, distinct from me. I was sort of observing it as a third party and I think that's when you think, oh, yes, they're doing something sort of on their own, but they couldn't really do it if they didn't have the technology because they wouldn't be getting together in their groups. If you said, oh, get together in a group, you know, what it's like. Students say, oh, I can't. I don't have time. But when they're doing it using the technology where they can actually get the information, download it, go online and then communicate with each other through, as I say, discussion boards, it facilitates that and you sort of think, yes. It's this sort of independent, autonomous learning and they're taking the initiative, and it isn't dependent upon me. They're not sort of using me even as a bouncing board. They're doing it, they're interacting and I think this is the other thing, interacting independent of me. I don't have to be there to sort of keep guiding them.

...the technology is the means but the end product is, as I said, the sort of independent learning, taking their own initiative. In a sense, being in control of the pace and how they learn and what they learn, you know, within a framework that we've set down right at the beginning and that the university's provided us a technological infrastructure.

The independence of students from their teachers is also a strong feature of this category. This independence is described in positive terms, as a good outcome of the lack of/limited physical presence in the teaching-learning situation; again, reflecting the strong focus on learning rather than e-learning. Having said that, though, there is a sense that the e-learning situation results in the generation of something new and different in the learning environment; and e-learning is deeply embedded within the conceptualisation which is really about learning. The following excerpt illustrates this.

What comes to my mind [when I think about e-learning] is that it's a way of the student gathering information or receiving information from the lecturer but it's sort of done independently, if you like, of the sort of face-to-face lecture theatre or seminar or tutorial. ... So it's got that flexibility and it's got the ability for students to sort of do their learning when they want, how they want and where they want. And we, you know, once had a student say that it's great doing this e-learning because you can study in your underpants. You know, so that's what comes to my mind. It's sort of like breaking that, almost physical connection that exists when you think about lectures and courses where you have the students and you in the same room or you're sort of symbiotically linked.

Category D E-learning is seen as a means through which to reduce distance between and amongst teachers, students and the course material

In this category, emphasis is on flexibility, access and timing of courses. It is through e-learning that students are given the opportunity to make closer contact with other students in the course, their teacher and the course material. Often reference is made to self-contained packages and self-directed learning. E-learning in this category is often equated with learning at a distance.

Distance learning or self paced/self directed learning.

E-learning is about flexible learning. Not just an emphasis on technology but on tutor contact whether on or off campus.

My students are widespread, covering the bottom of the North Island. There is huge potential to communicate, discuss, instruct, debate and direct student learning and through that monitor progress. I think the value is in the quality of responses you give as a teacher.

Flexibility, recovering from missing a lecture, being able to re-listen to sections missed or not fully understood, tapping into different learning styles, useful for English as a second language students.

It allows the student to feel in touch with the university and have a regular dialogue with those teaching.

Flexibility in terms of time, place and learning methods.

Faceless interaction with students, challenge of translating a course that has probably been delivered for the last 1000 years in the same way to a completely new medium/method of delivery and increasing the level of knowledge gained by the students (or at least maintaining it at the same level), teaching transcends time and place (i.e. teaching from anywhere at any time), a lot of time will be spent on the computer.

Lessons are put onto a website and students access the material.

Benefit to my role as an educator, one who could be considered a distance educator; the benefits ... including my own learning. E-learning is an opportunity to learn, attend and contribute to forums, to participate with other centres because of geographic isolation. I think the value lies in the quality of the response you receive as a student.

Self-directed learning by students. Professionally prepared resources (e.g., by textbook publishers).... More efficient use of lecturer time (fewer interruptions at the door).

Flexibility to learn at times to suit, isolation, potentialising e-media.

Materials that, by their dynamic, interactive nature, assist the student to make knowledge their own.

On-line, 24/7 access to materials and tuition aids.

There is some notion of inherent difficulties caused by the lack of contact between teachers and students. For example,

Students do need to have personal contact. E-learning can be a bit sterile.

When I think of e-learning I think of students ...hav[ing] a limited amount of contact with a teacher. The nature of e-learning might be inter-university study or individual distance teaching. So the community may or may not be as large and collaboration may only occur online. Teacher contact restricted to a couple of weeks in either term. Assessment and feedback may be more problematical than as before. Difficulty explaining concepts or resolving misconceptions.

Some danger of slippage by weakly motivated students.

Category E E-learning is seen as a collaborative enterprise

In this category, the whole enterprise of teaching and learning is presented as the result of a number of stakeholders working in collaboration. These stakeholders include students, teachers and support staff. E-learning is collaborative because it depends on stakeholders knowing their roles and contributing appropriately and effectively. Major roles described include,

- *Students* – knowing how to learn on-line or at a distance
- *Teachers* – knowing about their roles as facilitators and managers of learning and knowing about the technologies and how to use them
- *Support staff* – contributing to and supporting infrastructure, instructional design, management and organisation of resources.

The following extracts from the data serve to illustrate this category.

Regarding teachers and support staff:

I think teachers have to be very open to the opportunities. I suppose this is the key thing and to help do that, of course, we require an environment with a lot of support people who have some knowledge of the teaching and learning process and are able to help from the point of view of their knowledge or what technologies can do. So there's a marriage there.

I think there's different levels that you actually have to operate on. ... I do think you need that educational input, the instructional design element as well as the software management that's going to actually produce something that actually is good.

Whilst I might actually be okay on instructional design, I would have no idea how to stream a video link or, you know, I could do a storyboard and I can do the instruction but I can't do the software. So, you know, I think you need a combination of skills.

Regarding teachers and students

I think the lecturer has to be flexible and if you're not, then I think the problem could be that you would, instead of having the learning outcomes that you want, it would be the opposite. The student will withdraw and they'll have a bad experience and they'll lose confidence and it'll affect their other papers.

You have to be aware that not all students are going to take this up in the same way because you know, in an ordinary lecture, you could have a great student sat there and a poor student and it doesn't really make a difference, do

you know what I mean? Because the students don't have any different experience. They just maybe sat there and not taking much notice but when you're trying to do this interactive thing or group work, online or discussion board, it's much more obvious if you're not a good student and it's clear to everybody else in the group.

I also think you have to monitor [student interaction and participation] to a certain degree because there's a lot of students who have been used to being supported, are used to having the security blanket of the lecture and the contact. And if you start saying to them, oh, you're on your own, e-learning, some of them do panic a bit... You have to make yourself accessible even if you are saying a lot of this can be done independent of me.

Well, I think the technology ... isn't the thing in itself but that is usually the way we're sort of using e-learning to get our learning outcomes. ... I think the technology has to match your aspirations because if you're saying to students, oh, I'm leaving you to do it now, you can do your e-learning and they're saying, well crikey, I couldn't get on [to the internet/LMS]. It didn't load. So you have to be sure. You need a trial run. You need to get somebody and go and pretend to be a student. ... so I think you have to make sure the technology's there and that you're not overreaching yourself.

You have to tailor your goals to the technology otherwise you will lose students.

Regarding teachers and their responsibilities/roles

Design of courses is important. Administration is an important consideration as well.

[Introducing e-learning brings] work and lots of it! Providing an element of e-learning is time consuming, the technical support is sometimes not available.

Was fortunate in last position at another University, to have a dedicated web support person who was able to design and maintain departmental web pages as well as provide support for staff to upskill in this area. This model seemed to work best for me - it was immediate and ongoing support rather than extraction-type workshops.

2.2. Categories of description - conceptions of professional development for e-learning

Category A E-learning professional development is seen as training to use technologies/tools/equipment

In this category, e-learning professional development is seen as opportunities to learn about or be trained in the use of technologies and related skills. The content of such training is around the technical side of working hardware and the software.

The following excerpts from the data provide illustrations of this category.

Training with new software, use of on-line resources (ESRI's virtual campus comes to mind - GIS again)

Training teachers in various software programmes - eg. Powerpoint or other computer programmes to create CAL packages, Filemaker Pro for information management - so they are competent and comfortable incorporating computer-related activities into their teaching repertoire. Also, supplying teaching staff with information on what is out there in terms of technology, and how this could be applied in learning situations. Providing technical support to teachers, to enable teachers to be more confident about utilising computer-related activities.

Teaching teachers about technology that could support learning - whether it be video technology (video conferencing), audio support (recording lectures, recording interviews, sound in lectures/music classes), web-based applications such as wikis, blogs, social bookmarking, etc, or full database applications for courses to store info and get students to contribute to.

Category B E-learning professional development is seen as opening up possibilities for using technologies for teaching and learning

In this category, e-learning professional development is seen as presenting a positive opportunity to teachers and other staff to rethink practices. It is about creating opportunities for re-conceptualising teaching and learning processes and to explore possibilities. For example,

Teachers need ideas about how to use technologies and ideas about how to use them to teach.

They need to be shown what is possible.

[There] should not be an assumption that everyone will be early adopters but [a] recognition that most are the late majority.

E-learning offers a stimulus for teachers to re-think well-established practices and re-evaluate current ways of thinking about teaching and learning. There is an emphasis in this category on the opportunities and potential for teachers, their students, the course and the institutions to gain the best possible benefits from e-learning professional development. The following examples that express “possibilities” in ways that, for early adopters of technologies may seem quite mundane, illustrate these notions.

With e-learning, there's that layer behind the actual learning that helps to make learning more efficient. I think it's the same with teaching too. Like if you've got a teacher there that's spending, you know, three-quarters of their day answering their emails because they've got insufficient, well, inefficient methods for handling their email, then that's just a waste of teaching time as well as any other responsibility they have. So maybe the best way to do professional development for that particular teacher is not to teach them some fancy new e-learning tool, but teaching them how to better manage their email so it frees up three-quarters of their day to do something else.

Just taking the clicker example, what it needs is actually to have teachers themselves who are using it to be the ones to have the conversations with other teachers who are wondering about whether to use it or not. ... or even just be going into a situation where they can see it being used. ... If I could sit in his classroom to see how it was being used ... that's very powerful because you

can make connections with your own teaching and I think somehow it's a little bit different from just a technical seminar on how to set up the software and that sort of thing.

[Teachers] need to develop the ability to predict what might not work and have plans in place to address anything that might go wrong.

Teachers need to develop a sense of the technical.

Category C E-learning professional development is seen as a collaborative exercise that can take many forms.

In this category, all involved in e-learning (including for example, ICT specialists, teachers, support staff, institutions, senior managers, Heads of Departments, Co-ordinators etc.) are seen to have a role to play in professional development. Professional development roles can vary: from the organisation and implementation of formal workshops, to the provision of general encouragement by institutional leaders or heads of sections or senior management, or even more formal recognition through policy (affecting for example, employment and progression, curriculum development and implementation, assessment and so on). Types of professional development interactions can take many forms, including workshops, quick on-the-spot answers, long term coaching and guidance, individual and departmental support, and training sessions for all staff or larger groups.

I think of opportunities that arise in an ad hoc fashion or which are planned and structured that present teachers with information and insights into how to use technologies to support and enhance teaching and learning. Professional development could be a variety of things from discussion and reading to practice, training, workshops, ongoing experimentation etc

Regarding encouragement for learning about e-learning:

I don't think the encouragement is there. I think it's still perceived as being a, a novelty on the fringe for some of the technologies.

But I wonder whether more than pushing out an idea, helping people customise that idea to their particular course, so some hands-on work there would perhaps be a good idea. Focusing on a few areas and doing them well rather than trying to cross the whole spectrum.

Regarding sharing of practice amongst colleagues with the support of specialists:

I think it takes a champion.

I'd start small and maybe even form a little group so you've got peer support and between two or three of you, you could do, make an electronic crossword or come up with an online multiple choice assessment or whatever. Yeah, it could be really small and fun and, and you could get creative. Yeah just bit by bit. But you'd want to turnaround and be able to get on the phone to somebody in ITS or whatever or from Blackboard to give you the answer that you need initially, yeah. A lot of people, after a while, just go on their own. But that might take you a while.

Case studies and seminars will help to inspire good practice.

Professional development sessions could include show and tell sessions e.g. using wikis, peer to peer interaction, technical developments and other professional development that addressed the pedagogical side to things.

Regarding, close at hand support for the technical, as well as the pedagogical:

It would be great to have e-learning specialists that cross between teaching pedagogy experience, understanding of where the research is, but also some technical skills.

I think it is useful for those intending to use e-learning - particularly discussion boards, to be a 'student' in a course themselves to experience first hand what it is like as a 'student'. This would point to the need for short-term online courses to be available for staff, as well as more extended certificate qualifications - with new technology coming online all the time it is hard to keep up with the language, let alone the technology. So this points to the need for some way of reaching the teachers - maybe via some workshops or more central support for say, development of wikis, blogs etc.

I guess the biggest fear is that you'll do a lot of work and you'll lose it or you do a lot of work and there'll be nothing you get out of it and I think that's, that's not going to happen. You'll get something out of it, even if it brings you into the 20th Century. But, you will get something out of it and it doesn't replace your other methods. You still have them. I guess it means more work but maybe they could start small and not do a whole paper. Only do two lectures or do one assessment.

Category D E-learning professional development is seen as being about relevance and purpose

In this category, relevance, purpose and value are highlighted as key elements which need to exist if staff are to engage in any development activity about e-learning. Relevance, purpose and value can come from many sources including the reward that teachers can gain from seeing their students learn, and from experiencing, first hand, the possibilities and practical real life applications of e-learning within familiar teaching and learning contexts. Rewards, incentives and stimuli to spark interest in e-learning are included as important parts of professional development in this category. Relevance comes from tailoring professional development to suit individual needs, related to specific contexts and subjects, and being available when they are needed and in a form that is most useful, appropriate and effective.

I sort of think of the rewards as actually just being the student learning itself... If something improves learning, then I think of that as reward.

I think the crux of it is in the course design and that's, you know, here we offer workshops and things in course design and often go and work with departments in course design and that's the stage where you need to really discuss options in terms of technology or, or whenever you're discussing course design, you ideally should start with the outcomes and then work backwards and see what support, what teaching methods are going to help to get those outcomes and that's where technology can come in.

I'm thinking maybe, maybe there should be some more requirements in the way we structure our, [institution] I don't know whether, whether some at the

dean level have a little bit more authority to push some of these things through. It needs some more funding so that you can set up that infrastructure side and that top-down approach. I think if that's more well established, and then, hence, promoted, people would see the value, and if it's got value, they would all see the value and want to adopt it and if they know it's easy for them to get into it, then, they will.

Educators need buy in – they need to be convinced that e-learning is worthwhile

Need to be a sense of progression in any professional development – from small steps and close guidance for teachers, then ongoing guidance and support to help them develop to a more advanced level.

Staff need time to develop skills. They need a different range of starting points, learning needs and competencies.

Good infrastructure is needed – for example, decent band width available in remote areas, firewalls and levels of protection also need to be looked at.

Need to see/participate to reduce the threat. A broad approach to professional development is needed – do a course and experience it for yourself.

Professional development should have elements of exposure, watching, sharing and making aware.

They need to be reflective. If you make something mandatory it can have a positive effect as long as the value of what is being made mandatory is made explicit.

Value needs to be seen in the pedagogy and that teachers efforts that they put into their teaching (e-learning) does have value for students. This then becomes a big reward for teachers.

In the next section of this report we discuss these categories of description and consider the implications for the development of a framework for professional for e-learning.

3. Discussion, Implications and Next Steps

One of the ways in which the implications for the phenomenographic study can emerge is through an examination of outcome space. Outcome space is the result of fitting the categories into an order according to logical complexity and conceptual content (Dahlin, 1994; Lybeck et al., 1988). In determining outcome space a more complex conception is usually placed above a more simple one, that is, the simpler conception is implicated by the more complex one (Dahlin, 1994). Thus, the logical relations between categories are found (Lybeck et al., 1988).

The following diagrams (Figures 1 and 2) illustrate the outcome spaces derived for the categories of description for e-learning and for e-learning professional development. Within the description and discussion of the outcome spaces, we make direct reference to the proposed draft framework for e-learning professional development that was broadly outlined in our Milestone 2 report, the Literature Review (see Figure 3). Making explicit connections in this way serves to a) enhance the validity of the categories discovered in this study; and b) provide a degree of empirical support for our proposed framework, which was generated upon the basis of our international environmental scan.

3.1. Outcome space - e-learning

The outcome space for conceptions of e-learning is presented in Figure 1.

Category C (*e-learning is seen as learning*) appears at the centre of a series of concentric circles. It is placed here to emphasise its core place in the educational process. The goal of any educative activity is to enhance learning.

Categories B (*e-learning is seen as a means through which learning interaction is facilitated*) and D (*e-learning is seen as a means through which to reduce distance*) are about ways and means to stimulate learning and to support the process of learning. Thus through interaction, learning can be sustained, maintained and enhanced, and distance, whether physical, geographical, intellectual, perceived or real, can be reduced.

Without tools, software and hardware, e-learning cannot happen. Thus Category A (*e-learning is seen as tools, equipment, hardware & software*) has been placed in the third concentric circle. Category A refers to the technologies or the enablers that both shore up and provide possibilities and opportunities for processes of teaching and learning to happen.

Finally, Category E (*e-learning is seen as a collaborative enterprise*) is placed outside the circles showing the important role played by staff and structures at all levels to make the enterprise or system of education involving e-learning happen. Different groups within the collaboration have different roles which will impinge upon various aspects of the teaching-learning enterprise represented in the concentric circles.

In summary, tools (Category A) support and facilitate the interaction (Category B) and the “meeting places” that bring students, teachers, courses, institutions together, no matter where they are (Category D). Collaboration (Category E) at all levels supports the functioning of the whole system. The ultimate purpose of e-learning is to enhance learning (Category C).

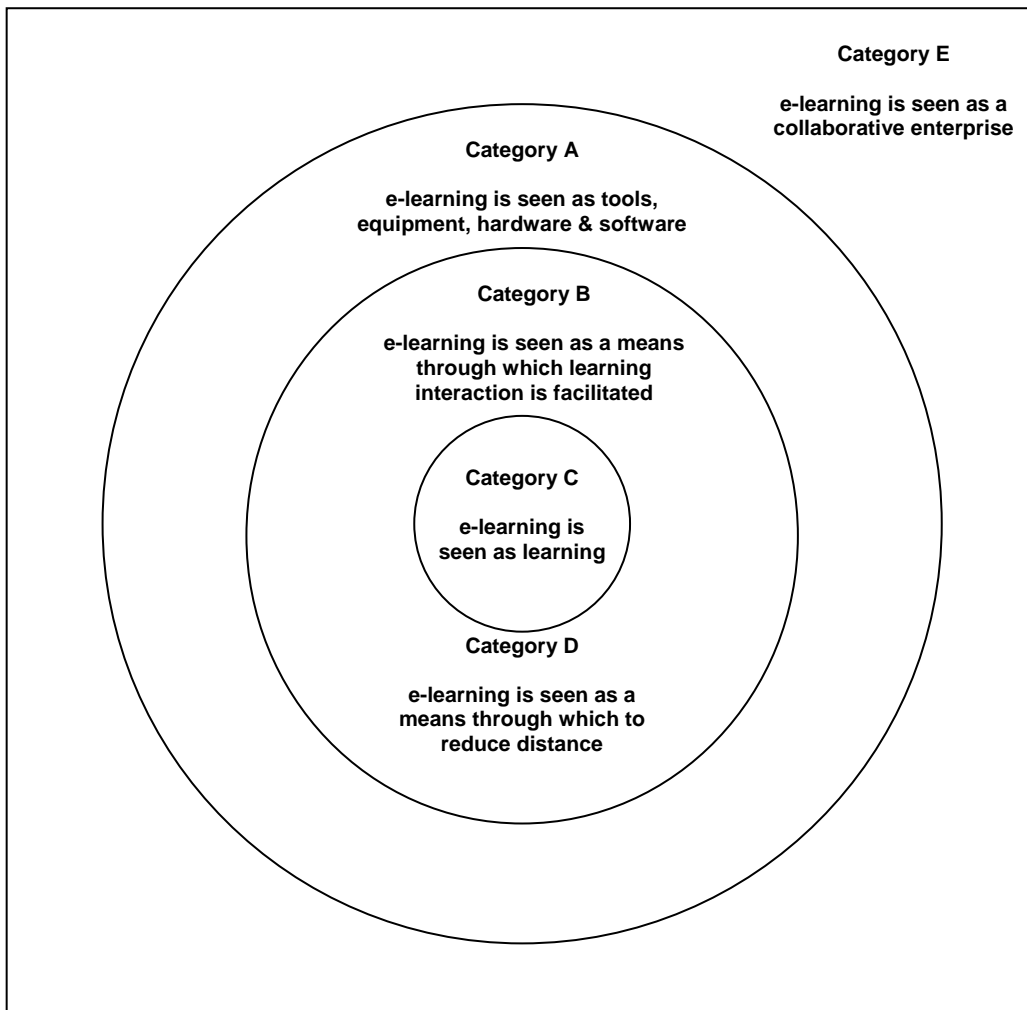


Figure 1: Outcome Space for the Categories of Description for E-learning

3.2. Outcome space - e-learning professional development

A diagram showing the outcome space for conceptions of e-learning professional development appears in Figure 2.

Category D (*e-learning professional development is seen as being about relevance and purpose*) is placed in the centre of the diagram to show that e-learning professional development will occur effectively if staff can see purpose, relevance and value in the learning they are engaging in. The positioning of this category in the diagram signifies that professional learning needs to be viewed as valuable, relevant and useful if staff are to engage fully in it.

Categories B (*e-learning professional development is seen as opening up possibilities for using technologies for teaching and learning*) and A (*e-learning professional development is seen as training to use technologies/tools/equipment*) are placed in the next layer of circles in the diagram to represent the content or ‘territory’ of e-learning professional development. The two categories placed in this way bring together the conceptualisations of e-learning professional development being about training in the technical (Category A) with learning about and exploring the pedagogical (Category

B). Where staff learning is concerned, this outcome space diagram is suggesting that both areas are of equal importance.

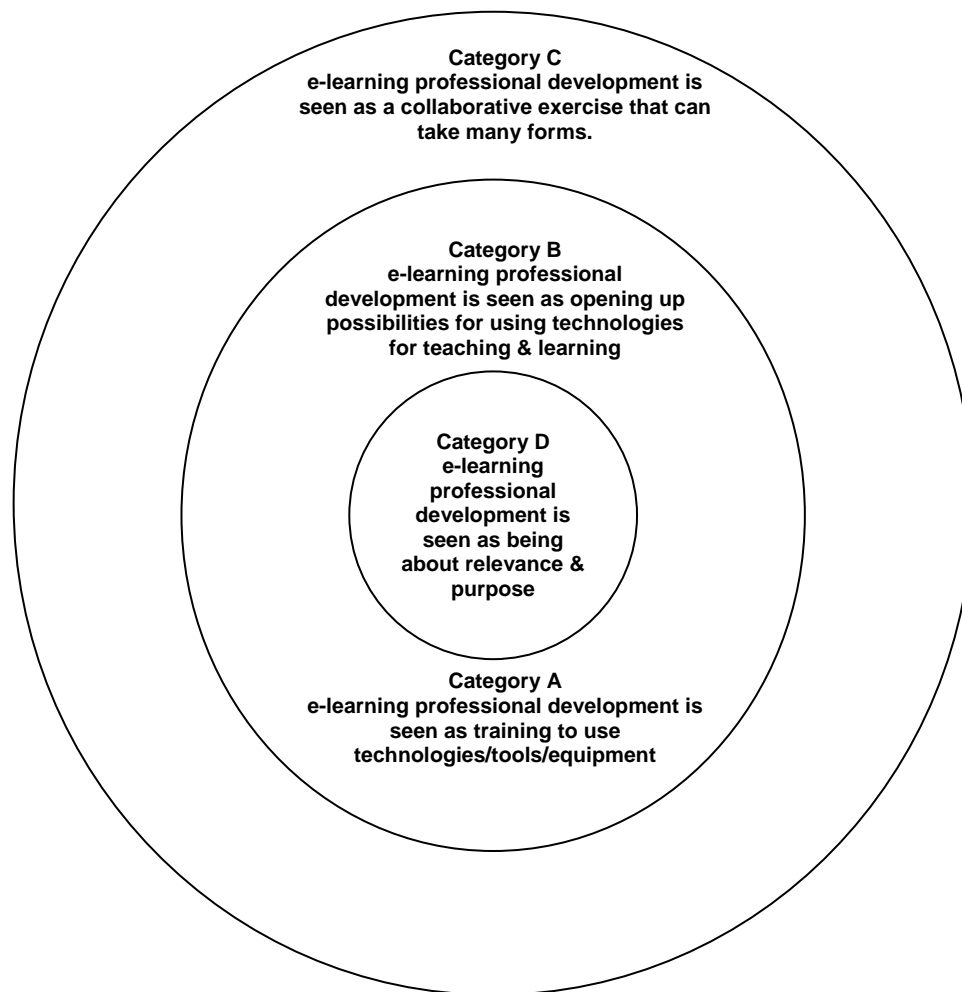


Figure 2: Outcome Space for the Categories of Description for E-learning Professional Development

The final category, C (*e-learning professional development is seen as a collaborative exercise that can take many forms*), makes reference to the various processes of professional development, all of which should be responsive to individual, departmental or unit and institutional needs. This category is positioned in the outer most ring, indicating that in practical terms, element of categories A, B and D rely on collaborative support from all involved in the teaching and learning enterprise or system.

3.3. Links between the categories and the proposed draft framework

In this section we examine the categories of description, including the outcome spaces, in the light of the proposed draft framework for e-learning professional development, as presented in our Literature Review (Milestone 2 report). The proposed draft framework appears in Figure 3, below.

From a view which argues that learning happens when an individual alters his or her conceptualisation of a phenomenon, learning occurs when the individual sees the change as fruitful, rational, reasonable, plausible and intelligible (Posner, Strike, Hewson, & Gertzog, 1982). The proposed e-learning professional development framework – designed to be applicable to individual staff, groups, institutions and the tertiary sector as a whole - is founded upon the principle that learner engagement is paramount for appropriate and effective professional learning to occur. Engaged learners are better placed to view their learning experiences and outcomes as worthwhile and work towards embedding new ideas, practices and beliefs.

From this basis, there is alignment between the overarching e-learning professional development Category D (*e-learning professional development is seen as being about relevance & purpose* - see Figure 2) and the proposed professional development

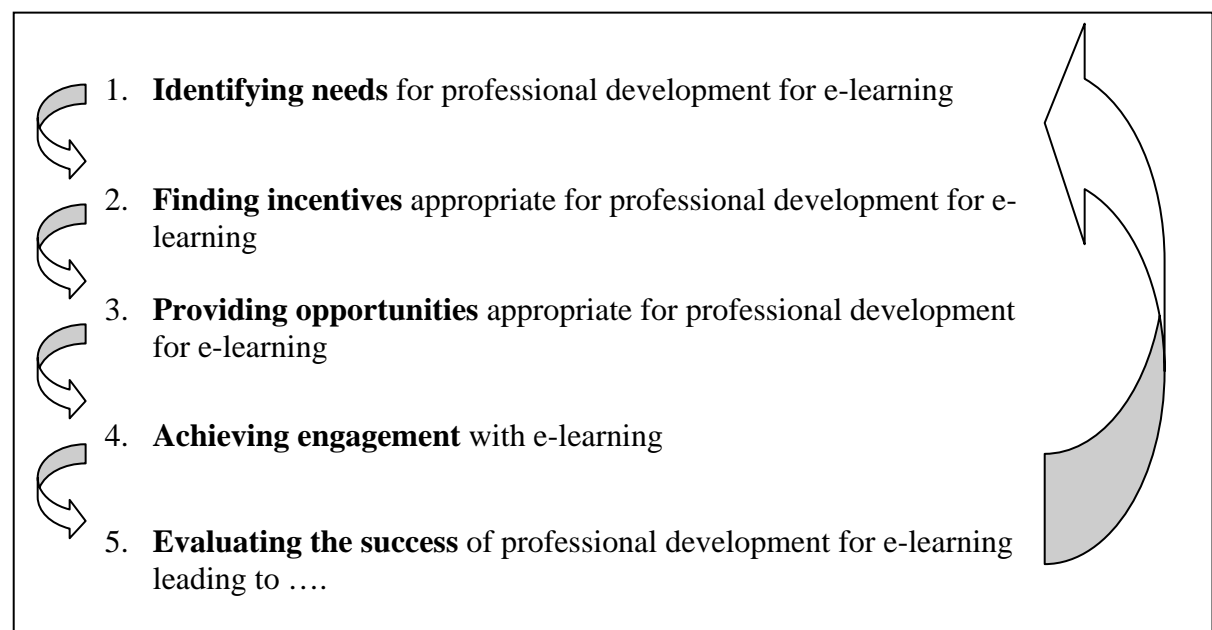


Figure 3: Draft Proposed Framework for E-learning Professional Development.

framework in which engagement plays a pivotal role (i.e., *4: Achieving Engagement* in Figure 3).

Foundations can be laid for staff and institutions to see the plausibility, rationality, intelligibility and fruitfulness of new e-learning phenomena through professional development activities which are responsive to needs and provided in forms which are:

- manageable;
- related to context;
- both anticipatory and ‘just-in-time’;

- on topics which are both essential (to meet practical technical and pedagogical needs) and imaginative, creative and proactive (to stretch imagination and to promote and suggest possibilities);

and which bring with them reward and recognition for effort.

Links thus exist between *1. Identifying Needs* and *3. Providing Opportunities* from the draft professional development framework, and Category B (*e-learning professional development is seen as opening up possibilities for using technologies for teaching & learning*) and Category A (*e-learning professional development is seen as training to use technologies/tools/equipment*) in the e-learning professional development outcome space (Figure 2). Other direct connections exist between *4. Achieving engagement*, *2. Finding incentives* (Figure 3) and Category C (*e-learning professional development is seen as a collaborative exercise that can take many forms*) (Figure 2). We will explore these links and connections in depth in the next stages of the project.

Where the range of conceptions of e-learning is concerned (Figure 1), how staff view e-learning (including the degree to which they view e-learning knowledge and practice as fruitful, rational, reasonable, plausible and intelligible) will determine and influence their uptake of e-learning, their learning about it and the integration of it into their teaching. It follows that groups and individuals working through the steps of the proposed framework should have in mind the range of conceptions held by teaching and support staff, and this range should also be taken into account in policy and planning. The building of contextually-based/oriented actions should thus be incorporated into the enactment of the framework to ensure that active engagement results. For appropriate and effective outcomes of any professional development to result, all staff, not just those already enthusiastic and positive about e-learning, have to be involved and planning and action should occur at a number of levels: institutional, department/unit, teaching group, individual.

In summary, the outcome space for e-learning professional development provides a platform upon which the sequence of steps outlined in the proposed professional development framework rests. The conceptions of e-learning professional development that are held within the tertiary sector and reported in our categories of description and outcome space, also align well with the framework. The outcome space provides an empirical foundation for the framework, including providing deeper insights about the form and nature of the steps within it.

Similarly, the e-learning categories of description and accompanying outcome space provide insights into the range of conceptions held by teaching and support staff about e-learning. Professional development planners and implementers should acknowledge and recognise this range of conceptions within any system, strategy, programme or activity they propose.

3.4. Next Steps

The results of the phenomenographic research reported here have provided additional insights into our understanding of the issues related to professional development for e-learning. In the next stage of this project we will work closely with the Massey led tertiary e-learning research project to propose a framework for professional development for e-learning. This framework will be informed by the results of research of both projects. Once the framework has been agreed and presented then we will work towards our overall report which will include all the work undertaken to date and make recommendations for implementation of the framework.

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