

WHAT HAVE WE LEARNED ABOUT INTERNETBASED ASSESSMENT?¹

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ABSTRACT: This paper summarises the results and conclusions of an EU-funded project on *internetbased assessment*. The key finding is that whenever ICT is presented as a technology (or technologies), e-learning (or e-teaching) should be counter-posed as a practice or activity. In turn, this insight, shaped the evaluation of the project. The project met its primary, developmental goals (in terms of 'deliverables') and consciously engaged with the wider 'objectives' of the sponsoring Minerva programme. At the same time, however, it failed to meet the developmental spirit of the Minerva initiative. No guarantee can be given that the project reached the goal of *communicating* (sharing) or *disseminating* (implanting) the 'best practices' or key insights described in this paper. It is too early to say.

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When philosophy [science] paints its grey on grey, a form of life has grown old, and with grey on grey it cannot be rejuvenated, but only known; the Owl of Minerva first takes flight with twilight closing in.

(G. W. F. Hegel, Preface, *Philosophy of Right*, 1821),

Throughout the summer, a series of events take place in the north of Sweden that are known as *mässor* (singular *mässa*, *Messe* in German). Originally linked to religious festivals dating from the Middle Ages (cf. *mass* in English), these events were trade fairs. They occupied public spaces in the centres of town and they provided opportunities for farmers, craft workers, and travelling merchants to sell their products and services, recruit labour (including wives), exchange family information, prepare for the winter and, generally, have a good time.

This event, *Science & Cyber 2004*, has some of the characteristics of a trade fair. Visitors are attracted from far and wide; prospective partners are interviewed; products (including knowledge) are displayed and exchanged; and social events are organised. Further, the language of modern trade- or cyber-fairs also echoes the horse-trading of earlier centuries. One-liners and marketing claims have been replaced by bullet- and power-point presentations.

In fact, *Science & Cyber 2004* is more accurately portrayed as a hybrid. It is a trade fair *and* a conference. It has the atmosphere of a scientific conference because it takes place in a university; and because its activities include paper presentations with their complex arguments and humble claims. *Science & Cyber 2004*, therefore, has a double voice. The carnival atmosphere of a trade fair blends into the (possibly) more moderate stereotypes of modern academic communication.

In preparing for *Science & Cyber 2004*, I have tried to respect this hybridity. I have prepared both a stand-up presentation and a paper for subsequent perusal. In both cases, I discuss a 3-year project on *internetbased assessment* (hereafter IBA), funded through the Minerva sub-programme of the European Commission. Taking my cue from Hegel, the project has now reached its twilight phase. Funding is 'closing in', terminating on the 31st December 2004. My task, then, is to take flight with the question: what have we learned about internetbased assessment? And to give my argument its 'lift', I will comment on assessment practices, innovation issues, the relation between informatics and pedagogics and, not least, the intersection of ODL (Open and Distance Learning) and ICT (information and communication technology/ies).

The project has built on the contributions of partners in Sweden, Belgium and England. It has been a team effort², and full details of each partner's contribution can be found at www.onlineassessment.nu. On this occasion, however, I write as the (Umeå-based) co-ordinator of the project.

² Project members and, therefore, indirect contributors to this paper comprised Barbara Crossouard, David Hamilton, Ulf Jonsson, Valère Meus, John Pryor, Beiril Roos, Anders Steinwall, Hans Sundström, Steven van Tittelboom and Harry Torrance. The project's EU reference number is 91894-CP-1-2001-SE-MINERVA -M.

Development and Innovation

The Minerva action was designed to promote 'ODL - ICT in the field of Education'. It was conceived as a practical and developmental initiative, not a laboratory-based research programme. Funded projects, that is, were expected to produce something that could be disseminated and used elsewhere. The dream, I suppose, was that developers would produce a 'killer' applications that would revolutionise e-learning?

As an educationist, I have always been sceptical of this product-based view of development. It conflicts with the view that educational practices are cultural rather than technical. The claimed world-wide similarity of educational practices (e.g. frontal teaching) is not a natural law: it can also be understood as an expression of the hegemonic powers of the Christian Church and the subsequent capacity of colonial powers to impose their educational order on other peoples.

Accordingly, the IBA project took a fresh look at *development*. From the outset, it sought to build its development(s) around three innovations or ideas: (1) software that enable teachers to develop their own tests; (2) test theory that prioritises supporting learning over measuring learning; and (3) the idea that 'tools' or 'products' are artificial prostheses, only acquiring educational significance in the hands of teachers and learners³. To this extent, our revision of technological thinking followed the same lines as Shepard (2000), Delandshere (2002), and Baker (2003).

Thus, our aim was not to restrict ourselves to developing of test instruments. Rather, we aimed to develop teachers and learners, building upon their engagement with assessment ideas. Project partners used seminars and workshops to introduced teachers to test theory and do-it-yourself test development. And, as part of the project's evaluation strategy, partners have also scrutinised the take-up and adoption of these ideas, together with the reactions of students.

Our initial findings were not unexpected. Take-up was partial and patchy. Teachers were interested in the ideas and procedures; yet only a small minority found it possible to introduce IBA into their own teaching. Why? Various explanations can be given. One of them has become a cliché of innovation theory, repeatedly invoked to explain away the shortcomings of each new killer application. In summary, I call this the 3Ts explanation. Adoption is partial and patchy because, variously, the *technology* is inadequate, *teachers* have been resistant to change and, finally, additional *training* is needed before the innovation can flourish. Good examples of such comment can be found in a discussion of the introduction, in the 1500s, of one of the earliest killer applications in schooling – the modern Catechism (Strauss,1967).

Hidden Costs

The 3Ts analysis is reductionist. Developers and teachers are identified as the ultimate 'cause' of innovation failure (see, for example, Cuban's overview, 2001). No account is taken of their motivations and values, nor of their practical circumstances. Given the limitations of the 3T view of innovation, Our follow-up work generated the following picture of ICT innovation in Swedish higher.

Teachers at Umeå University supported the idea that new software offered opportunities for educational innovation and, with such innovation, they saw an opportunity to realise

³ To describe educational technology in terms of prostheses harks back to Gregory Bateson's question: is 'a blind man's cane...part of the man?' (in his *Steps to an Ecology of Mind*, 1972; see Hayles, 1999, p. 84).

not only their own educational values but also, in the process, contribute to the realisation of the 'learning society' (one of the goals of higher education in Sweden). Some enthusiasts –students and teachers - remained with the project and rated it highly (a pattern that was also evident in England and Belgium). They demonstrated *development* in both their thinking and their practice. On the other hand, many teachers who claimed to use ICT in their teaching showed little overt interest in developing their own assessment instruments. Closer investigation (a telephone survey of non-response to a questionnaire) offered an explanation: university teachers in Sweden have grown project-wise and project-weary.

University teachers, that is, are constantly subjected to innovation offers. Money is allocated from national and international agencies for the transformation of practice. Typically, these offers have a limited life (3 years in the case of the Minerva action). Thus, they give little attention to the long-term or aftercare implications of innovation. Innovation is regarded as a pump-priming and trickle-down process. Teachers may have been interested in ideas about assessment. But, unlike national and international policy-makers, they were sceptical about the hydraulic metaphors of pump-priming and trickle-down. They asked probing questions about licence costs, training opportunities and, particularly, administrative support. Ultimately, they were dissatisfied with our answers. They calculated that the project's assessment ideas and procedures would not remain viable after the withdrawal of funding.

Students, on the other hand, took the opposite position. They were happy with the project; and they looked forward to an extension of IBA across the university curriculum. They could see its potential for supporting flexible, asynchronous learning; they could see how it differed from current practice; and they felt they could incorporate its challenges into their everyday practice. But, of course, they took no account of the hidden costs of IBA that the teachers had identified through their questioning. Paradoxically, it seems, the IBA project developed teachers in a counter-direction. As they weighed up its costs, they felt they could no longer afford the asking price.

Developers Developed

Hidden costs are a feature of all development projects. But there is a further hidden dimension that helps to account for the partial and patchy take-up of IBA – the fact that, through their practice, developers also develop. The project's visible intention was to develop teachers and students; but its ideas and procedures never remained frozen in the terms of the original proposal to the European Commission. In fact, faced with probing by teachers and students, the assessment ideas of the project team also underwent development.

Here is an example, taken from the Umeå initiative. Early in the project it became apparent that teachers had few difficulties in customising their on-line assessments. Typically, however, they created multiple-choice test for the recall of factual information. At the same time, some of them recognised that such practices neglect 'higher-level' knowledge (e.g. synthesis). Their recognition, however, was probably not random; it alluded to a *taxonomy* of forms of knowledge developed by a group of college examiners meeting in the wake of the 1948 American Psychological Association annual conference (see Bloom *et al.*, 1956). Unfortunately, the so-called *Bloom's taxonomy* is no longer favoured by assessment specialists. It was developed by reference to students' behaviour and, accordingly, it took no account of the *cognitive revolution* in the study of thinking that occurred after the 1950s.

In practical terms, the problem of Bloom's taxonomy arises from its behaviourist bias. Students can memorise higher level responses such that if they reproduce them in a written examination, it is difficult to know whether they should be classified as 'recall' or 'analysis'. In other words, Bloom's taxonomy may be a useful classification of knowledge; but validity problems arise when it is used for test construction and interpretation.

Constructivist Assessment

Arising from these practical problems, it was necessary for the project team to find another model of knowledge and learning, one that would be consonant with ideas about support for learning and the relationship between thinking and behaviour. A model was derived during the second half of the project, ultimately from the literature on *constructivism* (e.g. von Lazarsfeld, 1979, 1995). It took the following form. Learners construct new ways of seeing the world in the light of their experiences. It is based on the idea that human beings have the capacity not only to learn more but also to learn differently. Accordingly, their learning is developmental, gradual and stepwise (*gradus* is the Latin for step).

Here are four utterances that can be interpreted in constructivist terms:

- a. This object is big.
- b. This object is bigger than that one.
- c. The difference between these objects is geometric not arithmetic - because each one is twice as big as the adjacent one.
- d. There are different types of measurement scale. (adapted from Roos & Hamilton, forthcoming)

Such a continuum of statements makes it possible to link assessment and developmental learning. Assessment becomes the charting of development and, in the process, supporting such development. In this respect, the ultimate source is the work of the Soviet psychologist, Lev Vygotsky (1896-1934). When assessment is support for learning, it 'wakens', he wrote, 'a whole series of functions that are in a stage of maturation lying in the zone of proximal development' (Vygotsky, 1987b, p. 212). Moreover, a developmental perspective requires, as suggested, that different stages of learning can be discerned which, in its turn, requires the 'development of logical relationships among subject matter concepts' (Gredler & Shields, 2004, p. 22) which make it possible to differentiate levels of performance.

Vygotsky summarises his position in the following words:

The zone of proximal development – which determines the domain of transitions that are accessible to the child – is a defining feature of the relationship between instruction and development....*The teacher must orient his work not on yesterday's development in the child but on tomorrow's.* Only then will he be able to use instruction to bring out those processes of development that now lie in the zone of proximal development. (1987, p. 211)

This developmental conception of assessment as support for learning is now accepted across the IBA project, becoming the springboard for future research and development. But such views of assessment are not widely accepted in higher education, even among examination experts. Sceptics take various positions with regard to constructivist assessment. Some do not regard it as legitimate, still working 'from century-old

understandings and behaviourist perspectives' (Delandshere, 2002, p. 1461). Others separate 'technology-enhanced assessment' from paper and pencil assessment on the grounds that the former is a 'field still in early, and in this case, very rapid, development' (Baker, 2003, p. 421). Overall, sceptics feel that the field of assessment as support for learning is insufficiently developed to draw their attention. As Lorie Shepard has suggested (2001, p. 1067), they operate with the viewpoint that this new paradigm for 'classroom assessment' is marginal or, as Shepard put it in a more positive light, 'emergent'.

Knowledge and knowing

In the wake of the cognitive revolution of the 1960s, the IBA project has also wrestled with the difference between knowledge and knowing. Influential in our thinking (at least in Umeå) has, therefore, been the difference between *acquiring* knowledge; and *participation* in the production of knowledge. The key difference between these views is that acquisition relates to *external* knowledge while participation relates to *personal knowing*. Sfard (1998) elegantly elaborates this distinction. The acquisition metaphor:

brings to mind the activity of accumulating material goods. The language of 'knowledge acquisition' and 'concept development' makes us think about the human mind as a container to be filled with certain materials and about the learner as becoming an owner of these materials. (p.5)

The participation metaphor, on the other hand, is:

conceived as a process of becoming a member of a certain community. This entails, above all, the ability to communicate in the language of this community and act according to its particular norms. (p. 6)

These two perspectives – participation and acquisition - can be combined, however, if knowledge acquisition is seen as arising from the activity of becoming a member of a community of practice (or, in university terms, a *discipline*). Acquired knowledge, that is, necessarily becomes personal knowledge – part of the learners identity.

This view of constructivism is represented, for instance, in Lave & Wenger's *Situated Learning: Legitimate peripheral participation* (1991). Learning, they suggest, is an 'integral constituent' of 'engagement in social practice' (p. 35). Participation knowledge arises from activity which involves 'the whole person'; it takes place 'in and with the world'; and it is a social practice where the agent, activity and the world 'mutually constitute each other' (p.33).

But how can this perspective on knowledge acquisition apply to assessment? The simplest answer is that learning arises from engagement in a social practice. Such knowledge, therefore, can be assessed according to 'can do' statements, of the kind that are used, for instance, in the *Common European Framework of Reference for Languages: Learning, teaching, assessment* (2001). Assessment, then, focuses on the assessment of performance and, in a manner derived from Vygotsky, requires the differentiation of levels of performance. Such knowledge is regarded as intrinsic to an activity (e.g. using a foreign language); and that it is used in context (e.g. for letter writing *versus* speech writing). From a pedagogical perspective, too, performance based on this knowledge can be discerned, categorised and defined in ways that can be shared among teachers and learners.

A Common European Practice?

The problem of having a shared appreciation of assessment models is not, however, merely a problem for examination experts, teachers and learners. It has also become an international policy issue. For more than a decade, countries within the European Union have worked to establish a European Higher Education Area (EHEA), following the signing of a declaration in June 1999. In Sweden this is known as the *Bologna Process*, whereas in other languages it is known as the *Bologna Agreement*⁴. One of the sub-goals of the process has been to establish common levels of performance across Europe by 2010. By 2004, however, this process has become little more than a framework of words. Its practical implications are still under the microscope. Moreover, much of the educational anxiety aroused by the Bologna Process stems from the fact that there is no common European understanding, for instance, of the differences between behaviourist and constructivist conceptions of knowledge and performance (see, for example, Hamilton, *et al.*, forthcoming).

One focus of dissent is the Bologna proposal to include a scale of performance (A, B, C, D, E, Fx, F). The range of this scale not only conflicts with established patterns in European countries (including Sweden), it also revisits the contrast between humans capacity and human development which stems from the 18th-century Enlightenment (cf. Hanson, 1993). Are students to be graded according to how much knowledge they have accumulated or, instead, according to the levels of understanding they have reached?

With such political, cultural and scientific diversity it is difficult to see how common practices will be agreed, let alone fostered across Europe. The formulation, agreement, dissemination and adoption of a clear set of Bologna proposals is likely to be a prolonged process.

Product Development or Practice Development

The problems illustrated by the Bologna Process arise from the disjunction between political goals and educational innovation. In this case, it seems that the educational goals of the EC have been reduced to assumptions about deliverables development. As the history of (failed) educational innovation suggests, such assumptions have rarely proved viable in school or higher education systems. Put another way, *product development* is conflated with *practice development*. It is assumed that the former guarantees the latter.

For example, it is clear that a digital infrastructure (i.e. product) has been created for the European Union (cf. 'The initial European target of connecting all schools to the internet is all but achieved', European Commission, 2002, p. 4). In turn, policy-makers have identified the potential of this product - as a delivery system. A gap, however, still remains. It is not a function of failed teachers or developers; it arises, instead, from phenomena already noted in information and innovation theory; viz:

- ? the same information can have many meanings;
- ? distribution is not communication; and
- ? communication is not dissemination.

At the simplest level, therefore, it is important to distinguish digital infrastructure from pedagogical context – as, indeed, the European Commission has already recognised:

As regards the training of teachers and school management, there is a

⁴ On the basis of a google search, references to the *Bologna process* (27 100 hits) seems to out-number references to the *Bologna agreement* (705 hits).

tendency to focus less on the 'e' of e-learning, and more on the 'learning' component of the process. Successful use of the new content and services depends to a large extent on the quality of teaching and the commitment of teachersIn this respect, the pedagogical context is very important and more needs to be done to understand the success factors for *best practice*' (2002, pp. 4-5)

Best Practice or Best product?

Arising from this confusion of practice and product, I suggest that developers sponsored by the European Union have only a weak sense of 'best practice'. Should they focus upon 'best practice' in the design and development of technologies? Or should 'factors for best practice' be their primary concern? Should they give their attention to designing the best canes for the blind, or should they work more generally – around issues that limit the mobility of visually-disabled citizens? Likewise, are developers funded by Minerva expected to refine a long-standing behaviourist technology - the catechism - using a range of fashionable aliases that includes 'multiple choice testing'; or should they develop something else - new conceptions of assessment?

In the absence of clear guidance on this issue, a deep malaise surrounds current development initiatives in educational practice. What, in fact, should be developed? Did the originators of the Minerva programme hope that EU investment might generate killer applications that could be marketed across Europe and beyond in the growing fields of open and distance learning? Or did they look for the development of practices (e.g. socio-technologies of blended learning) that might reduce barriers to ODL?

The outcomes of the Minerva action (available in various EU-sponsored data bases) indicate that it is, indeed, possible to develop a myriad of commodities in response to the policy perspectives of the European Commission. Nevertheless, these data-bases leave the dissemination question unanswered. How many of these developments will survive the rigours of the market place? In other words, production for the learning society is not the same as production for the learning economy. Rather like stall-holders at a trade fair, developers for the learning economy have a different view of production. As Eva Baker put it, they are:

anticipating the market-place. As a consequence, they are competitively branding and positioning their own approaches to the new, best solution and do not wish to credit, or credit too much, potential rivals. (2003, p. 422)

They are not merely producing something; they are also taking it to the market. In turn, commercially-oriented developers are sensitive to titanic disasters in the history of e-learning. Nevertheless, the world of education awaits a book like *Boohoo.com*⁵, the colourful obituary of the on-line fashion house *boo.com*. Nevertheless, there is an example that deserves international attention – the failure of the private/public initiative known as the United Kingdom e-University (UKeU).

The university's mission or marketing statement was:

UKeU - UK eUniversities Worldwide - is a unique company. We are backed by the UK Government with £62m funding, and our mission is to deliver

⁵ See <http://www.guardian.co.uk/internetnews/story/0,7369,542632,00.html>, consulted 4th August, 2004.

online and worldwide, the best degrees and degree-level learning that UK universities can provide. Our new, systematic approach to eLearning brings together, for the first time, the highest standards of academic excellence combined with world-class technological expertise and service.⁶

The university was announced in 2000. It was an attempt to engage 100-plus higher education institutions in international online distance learning. It was hoped that UK universities would use this common gateway to meet the (claimed) increasing overseas demand for a UK education. UkeU attracted only 900 students in its first year, against a target of 5,600 students; and, when annual losses reached £13.4m during 2004, projected staff costs almost doubled from £2.6m to £4.8m. In May 2004 the university was put up for sale; and its website only survives as fragments coopted by other agencies before the UkeU faded away.⁷

E-learning: technology or practice?

The collapse of the UKeU subsequently received the scrutiny of a Committee of the UK parliament. The committee's comments implied that the UKeU had failed to:

- ? create a clear business plan
- ? attract private funding
- ? identify key markets, and
- ? recognise that there is only a small market for unsupported e-learning (see Morrison, 2004).

Thus, the UKeU did not fail for conventional reasons. There was little evidence of technical failure, teachers resistance, or insufficient staff training. Rather, it failed for commercial reasons. Nevertheless, one feature of the collapse of UKeU matches our understanding of internetbased assessment. Unsupported learning is a utopian fantasy – even in the case of self-instruction. Technologies do not stand along. ‘Support’ may not be visible; but it is still present in the layout of a websites, the structuring of courses, the selection of readings, and the design of assessments. These are always shaped by humans hands, even if such hands are ‘invisible’ (see Hult *et al.*2004).

In short, there is always a pedagogic dimension to e-learning. In the process e-learning is turned from a technology into a practice, something that is also shaped by the vagaries of human deliberation, judgement and intervention.

Here is a Swedish example which clarifies the distinction between a technology and a practice. At the end of July and the beginning of August 2004, two three-man breakouts occurred from high-security prisons in Sweden. These escapes were organised with outside help. Weapons and mobiles phones were smuggled into secure areas and get-away cars and safe houses were provided outside the prisons. Public reaction to these escapes took many forms. Three responses, however, were notable. First, the Minister for Justice announced the building of more secure prisons (super-prisons); secondly, the senior official in the prison service argued that greater attention should be given to staffing

⁶ See http://www.ends.co.uk/jobs/course_ukeu.htm, consulted 3rd August, 2004.

⁷ See <http://www.computing.co.uk/analysis/1156772>, consulted 3rd August, 2004, for the the information contained is this paragraph.

issues; and finally, one of the escaped prisoners had commented earlier that no prison is 100% secure.

The first perspective is to see prisons as a containment technology (a *sin-bin*, in colloquial English); the second view is to see imprisonment as a human practice based on 'care' or 'safe custody', (*vård* in Swedish; cf. ward in English, which comes from Old Norse); and the third view recognises that imprisonment is a social technology, a practice that always carries the risk of failing to meet its purposive goals.⁸

Practices, therefore, have their own procedures, pace, timing, goals, values and risks; whereas a technology is seen naively as a bureaucratised practice that eliminates deliberation, judgement and risk. The organisational problem, in education as in the prison service, is to sustain a desirable, optimal and flexible relationship between practice and technology (or prosthesis) - something that, perhaps, is emergent in the work of the IBA project.

This point is not new. It has been widely acknowledged in studies of technology; e.g.:

Technology as a fundamental activity is intimately related to all other human activities and thus is an integral, indispensable part of all human culture and is not, as one often hears, an alien, inhuman force unleashed upon mankind by some external agent. (Mayr, 1986, p. xv)

Indeed, this point has already been extensively discussed by the Sussex partner in the IBA project:

Teaching, learning and assessment is not a set of procedures that can be unilaterally invoked by teachers, but a social interaction which takes place between them and their pupils. In order to understand the relationship, it is therefore necessary not just to take account of what is at stake in terms of cognitive processes, but also to look at other psychological and social issues. (Torrance & Pryor, 1998, pp. 168-9)

Conclusion

This paper has been written at a time when e-learning has reached, in Hegel's words, a 'grey on grey' stage. In this case, however, there are two different greys to be found, respectively, on the palettes of informatics and pedagogics. Thus, I am reminded of Hegel's colour scheme whenever I read about attempts to combine ICT and ODL.

Two recent commentators have come to a similar conclusion about the blandness of the literature on ICT and education:

In spite of the booming literature on ICT and education, there is almost no discourse on the subject (Aviram & Tami, 2004)

And,

distance education is the field which has 'most vigorously adopted new technologies' yet seems to be the area that is 'most in need of educational theories' (Nordkvelle, 2004).

It has been difficult, they suggest, to inject new knowledge and new colours that shed fresh light on the intersection of these fields. First, if Hegel is to be believed,

⁸ A concise account of the history and content of Swedish penal philosophy - and the 'fiasco' of the escapes described above - appears as the daily debate article in *Dagens Nyheter*, 14th August, 2004 (in Swedish)

these fields must be 'known' in their own terms.

The task of knowing ICT and ODL has been pursued in this paper. In the process, three sub-purposes have been addressed. The first purpose has been to summarise the aspirations, activities and outcomes of a developmental project on *internetbased assessment*. My conclusion is that although the project met its primary, developmental goals (in terms of 'deliverables'), it failed to meet the developmental spirit of the Minerva Action, discussed below.

The second evaluative purpose of this paper has been to reflect upon the goals of the Minerva action, notably those that highlight 'best practice' as a product. The IBA have been more successful in this regard, engaging with all the 'objectives' of the Minerva Action: viz,

- ? To promote understanding among teachers, learners, decision-makers and the public at large of the implications of ODL and ICT for education, as well as the critical and responsible use of ICT for educational purposes;
- ? To ensure that pedagogical considerations are given proper weight in the development of ICT and multimedia-based educational products and services;
- ? To promote access to improved methods and educational resources as well as to results and best practices in this field.⁹

Nevertheless, we recognise that, expressed in this way, such goals are only procedural. That is, they cannot be reached, they can only be 'done' (Carr, 2004, p. 61). In our reflections, we have endeavoured to do just this: to 'promote' understanding as an educational resource and to follow practices that, in conventional terms, 'ensure' that pedagogical considerations receive appropriate attention.

The third purpose of this paper, however, has been to reflect on these procedural goals, despite having at least one article on the EU-sponsored site *elearningeuropa.info*, and two articles already accepted for refereed scientific journals (see reference list), I *cannot* guarantee that we have *reached* these goals, and that, accordingly, our collective efforts have been *communicated* or *disseminated* according to the spirit of the Minerva action. In short, I do not know whether our work have captured the attention of others working at the intersection of ICT and ODL. It is too early to say: the owl has not left her perch.

To conclude: each member of the project has drawn their own conclusions from their experience of the IBA project; and some sense of these conclusions appears in each partner report. From my co-ordinator perspective, the key finding or insight is that whenever ICT is presented as a technology (or technologies), e-learning (or e-teaching) should be counter-posed as a practice or activity. In turn, I hope such a tension will generate sufficient energy to rejuvenate the Owl of Minerva (the ancient Greek symbol of knowledge), and to illuminate and steer her passage across the new worlds and great divides of ICT and ODL.

⁹ Taken from http://www3.socleoyouth.be/static/en/overview/minerva_overview.htm (consulted 10th August, 2004)

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