Collaboration, a business imperative for education

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Collaboration, whilst not new, has re-emerged as an imperative across the education sectors, particularly in the areas of resource development and the need to have interoperable systems. The drivers for this imperative result from changes to the environment in which the VET Sector operates. Brian Hawkins also chose collaboration as the theme for the keynote address at the recent EDUCAUSE Australasia Conference 2003, where he reinforced the need to break down silos and share networks, development of product and systems both locally and globally.

AEShareNet is taking a strong leadership role in the vocational education sector by providing a facilitative learning bank system for management of training resources which also provides a link to a wide range of national repositories. The 'AEShareNet Model' is designed to be a cornerstone for collaboration, sharing and trading resources. A major issue in trying to achieve this collaboration is the need for cultural change and moving the sector from a traditional cottage industry approach into an e-commerce world where new business models are emerging. Where has the collaboration theme emerged from, and what are the implications for resource development in the VET sector?

Background

Drivers for collaboration

During the 1990s the VET sector was undergoing unprecedented changes, moving into competitive agendas and commercialization. Concurrently the National Training Reform Agenda took shape and National Standards emerged resulting in National Training Packages, in other words, there was a national approach to content in VET (Gilding & Fripp, 2003). There were also other significant factors affecting VET delivery. The following are examples.

Changes to the profile of offerings in VET

The profile of offerings of most VET providers has shown some significant changes over the last twenty years. There appears to be a move from some traditional trade offerings to those callings or vocations that reflect the growing "service industry" economy. This reflects the change in the industry employment profile in Australia. Recent NCVER (2002, p15) research into skill demand and supply in Australia's education and training sector indicates that "the relative importance of the manufacturing sector in the Australian economy is steadily declining and the proportion of the workforce employed in the service sector continues to increase".

This appears to be supported by data about the change in offerings in vocational education in TAFE NSW. For example, in TAFE NSW in 1980, the proportion of annual student contact hours (ASCH) as a proportion of the total under the heading "General Education" was 11.9. In 2001 it was 24.5. ASCH in Engineering had changed from 27.1 in 1980 to 11.5 in 2001. There were also declines in Building and Construction and Business, but increases in Hospitality (3.3 to 6.8) and, not surprisingly, Information Technology (Davis, 2002, p5). Emerging VET profile courses are also more cognitive in nature, less practical skilled based, more amenable to constructivist learning styles and thus, potentially at least, less teacher centric.

Coupled with the introduction of National Training Package Qualifications in this period, plus the continuing changes in what some see as the more volatile service industry sector, there is a major resource development issue.

Changes in attendance patterns

During the same time period, it can be argued that nationally TAFE moved into serving a client group that was younger and which was far more likely to attend TAFE full-time.

> As unemployment rose dramatically in Australia, pressure was applied to conduct full-time courses in TAFE to try and soak up some of the energy of restless youth. Hitherto, full-time TAFE study was largely confined to a small section (mostly female) of the student profile. In a relatively short time, TAFE moved from an organisation that almost exclusively directed effort at skill development for existing practitioners (if the adult education component is ignored) to one that catered for both existing practitioners and those who wished to enter employment. The latter was to become far more significant over the next decade in some sectors (Davis, 2002, p6).

This client group generally required (and some would say demanded) different delivery models that reflect the use of ICT in contemporary society and which are less teacher and more learner centred. Again, there is a resource development implication.

Oblinger (2003) suggests that younger VET participants are more likely to be digitally alert and experienced with a different world view to their older VET teachers. They can cope with multiple simultaneous communication channels and messages and teaching this group will require teacher and institutional engagement with digital resources and e-business approaches in order to similarly engage VET customers.

Blurring the VET boundaries and multiple pathways

The above trend towards a range of new delivery models is further exacerbated by the current discussions on the wider offerings of Associate Degrees which are an example of the "blurring of the boundaries" between VET and Higher Education. The demands for alternate offerings to the traditional High School curriculum evidenced in the Queensland Education Training Reform Agenda could be considered a blurring of the VET/Secondary School boundaries. However, all of these are likely to require either new modifications to existing resources, or more likely, new resources.

Learning as a lifelong activity

The increasing casualisation of the VET workforce is just an example of an increasing trend towards serial employment in the workforce as a whole. One of the implications of this is that individuals will increasingly be required to accept responsibility for their own training and for keeping up-to-date. It is now apparent that up-skilling and re-skilling will become a reality for today's and tomorrow's workers. In order to meet these requirements, adult learners will demand access to cost-efficient, up-to-date and readily accessible learning programs. Where will the resources, continually updated for these learners, come from?

VET practitioners themselves are not immune from these changes. Their roles ".. have expanded and diversified .. VET teachers and trainers face increased demands to

be effective communicators, to have relevant and up-to-date content knowledge, and the skills to teach and assess in the classroom, workplace and online" (NCVER, 2003, p2). These changes, coupled with the need to embrace, understand and manage rapidly increasing knowledge relevant to their field, while at the same time work in an environment of tighter resource control and increased demands for accountability, fuel the drive towards collaboration.

"In the light of the external and internal demands for accountability and improvement in education, combined with the many demands on the time of teachers, faculty and staff, educational institutions and systems at all levels are seeking to understand how they can more effectively collect, disseminate, and share information" (Petrides & Nodine, 2003, p6).

All of the foregoing needs to be considered in the light of the advent of increased use of information and communication technologies. As Taylor (2001, p3) points out, that while some Universities are implementing a Flexible Learning Model based on online delivery by the internet, the next stage is what he calls the "Fifth Generation Distance Education" which is an "intelligent flexible learning model" that features computer mediated communication and automated response systems as well as interactive multimedia online and internet-based access to WWW resources. In other words, there will be even more use of information and communication technologies in the delivery of education and training which may well require new business models.

Rise of the digital age and "disruptive technologies"

There is a new body of research emerging about the impact of the digital age on business models and the need for organizations to engage with the opportunities. As Christensen et al (2003) state:

> "The incumbent's business model often cannot accommodate the disruptive innovation, and the incumbent therefore is inclined to willingly give up ever-increasing amounts of market share. Ironically, the disruption often is in full flower before the incumbent players even realize their old game is in jeopardy".

The term "disruptive technologies" aptly describes the world we currently live in. The same term has been used over time as similar "disruptions" impacted on society in ways that were also considered revolutionary. Recall how calculators replaced slide rules; or how the digital watch completely reduced the Swiss watchmakers empire; or the current-day computerized cash registers revolutionized business practices (CSC, 1999).

These new technologies are not the sole cause for the change, but **rather how the components are combined to produce new outcomes**. The rise of the internet is clearly identifiable as the current "wave" that is unsettling the marketplace. The world wide web and local intranets are still being explored as a means of entering into a new e-business world and have redefined customer service expectations. While many previous innovations took many years to gain take-up (pagers, faxes and VCRs), the internet has quickly engaged the ambitious and entrepreneurial as new supply chains emerge.

In his address to EDUCAUSE, Brian Hawkins saw the need for collaboration arising from a society based on the knowledge worker where change would not be incremental but discontinuous and transformational. Hawkins felt that this would impact on all educational sectors and they would be required to be nimble and agile in their responses to learner's needs. More efficient use of resources would be one means of ensuring their "competitive survival" (Hawkins, 2003).

Within the VET Sector, the technological advances have been on the one hand both exponential and unprecedented. The current-day Institute now has a range of

platforms including a Learning Management System, Customer Relationship Management, Student Support System, financial and administration packages, e-library, content development system and/or repository, and some have shopfronts and websites. Very few of these systems have historically been interoperable and metadata management was not a high priority (FLAG, 2003) but these platforms have now become drivers for collaboration in the use of standards for interoperability and the management of data so that effective cooperative development of resources and delivery models can take place.

On the other hand traditional classrooms with teacher led activities still predominate but how can this cottage industry approach to learning services be sustained? Some of the big educational institutions that are also educational publishers have a division of labour professional approach. In many places the teacher still attempts to do a whole range of activities, from administrator to counsellor to teacher to instructional and web designer.

What is collaboration about?

Collaboration is the theme of a recent paper from the Flexible Learning Advisory Group "Maximising Collaboration in the Use of Intellectual Property" and where the term was found to mean different things to different people, ranging across informal activities through working relationships and into formal collaborations - such as developing mandatory standards and joint ventures. The paper concludes that collaboration is a preferred strategy for State Training Systems to:

- pool financial and human resources for investment
- address national policies and regulations
- find solutions to problems or challenges that are owned nationally
- assist in being more competitive internationally (Crisp & Webeck, 2003).

Collaboration and sharing are also becoming part of the broader issue about exploitation of materials through both formal and informal mechanisms. Collaboration in the product development context is a theme which is inextricably linked to that of the "re-use" or "re-working" of learning materials. To collaborate and share, then requires some new thinking about how we structure information and resources in internal repositories, the use of metadata, and how rights management is addressed.

This thinking has been the focus for the 'AEShareNet Model' (see www.aesharenet.com.au/guides/107about.asp#model), which offers the vocational education community an innovative model by which to do business. The sector historically relied on single copy sales coupled with capacity for 'educational use' under collecting society licensing rules. The rise of the digital environment catapulted institutes into online delivery and the need to ensure the increasing amount of online intellectual property is now protected. The online licensing model offers the capacity to "modify" a resource under specified conditions so it can be "re-used", underpinned by a standardised and consistent legal framework to ensure a rights management approach (see http://www.aesharenet.com.au/resources/concept/index.asp).

Re-use or re-working of a resource offers many benefits, including savings on development costs, reduction in development time, opportunities to partner in the development of resources, and ensuring that materials can be continuously improved. However, there is still reluctance amongst educators to "re-use" works, and Hawkins (2003) suggests there are a number of issues involved:

- Not enough time
- Competition with priorities
- Recognition
- Sharing/trusting/inequities
- Diversity of standards and cultures
- Challenge of "one size fits all"
- Pride
- "Not invented here" syndrome
- Control
- Desire for yesterday
- "Uniqueness" of our campus

A case for reconsidering collaboration: Achieving a critical mass of learning resources

Hawkins (2003) emphasises the challenge of achieving a critical mass, where trying to work in isolation will never produce enough resources, and where he makes a strong case for collaboration as the only means of competitive survival.

While the case for collaboration is generally acknowledged, and is certainly not new, the Australian VET Sector has a number of historic elements to work through before it can truly engage in such an outcome. The VET Sector generally produces its learning resources internally, and it is only recently that the need to exploit these resources either in the public interest or for commercial gain emerged. This has caused considerable confusion for teachers who generally operated under the 'educational use' provision through collecting agencies and where few practices were in place to consider any external consumption or commercialisation of their materials. This confusion was verified during an initial copyright clarification exercise, where it was obvious that teachers had not understood or followed copyright processes in the development of their resources. A large majority of existing resources were unable to be made publicly available due to lack of appropriate copyright clearances.

The Australian experience is directly comparable to that in the United States when it was found there was a need to commence a national awareness raising activity on the basic facts about copyright issues across the educational and cultural communities (NINCH, 2002).

Likewise, the Pogson & Webeck Report (2003, p68) stated that making effective choices about how to access 3rd party copyright materials was marred by a general misunderstanding throughout the Australian VET Sector about how and when copyright applied. The Report went on further to state that the CAL licence "is likely being over used as a means for accessing 3rd party copyright materials through misreporting" (ibid, p70). This move to exploitation, coupled with a general misunderstanding about copyright issues, has considerable impact on how the products are developed, managed and distributed in an increasingly litigious world.

An emerging business model for VET

The business models for VET are clearly still emerging, as Institutes struggle to emerge from old paper-based practices into new online systems. Crisp & Webeck (2003, p84) suggest that *"AEShareNet* should be the starting point for the design of a new model – and likely also the evolution – of a VET sector learning bank system". They conclude that of the current learning repository systems, the *AEShareNet* system most closely aligns with the basic requirements for a "user transaction based learning bank system" as to:

- 'output' arrangements (e.g. licences)
- 'input' arrangements (e.g. agreements with the system operator),

- micro management techniques (e.g. metadata)
- macro management techniques (e.g. constitution and governing rules).

The website (www.aesharenet.com.au) is now the access point to the largest Australian VET catalogue of learning materials and is widely used to discover resources for use in delivery of training programs. It is however, the on-line transaction engine for trading licences to re-use learning resources that is the real incentive for collaboration. This greatly simplifies the slow and expensive manual contract approach and provides a systematic multi-lateral infrastructure for "rights management". Where there are existing examples of collaboration between institutions, they are normally bilateral and rely on continuance of particular practitioners. The online transaction facility raises this to a sustainable and transparent process. While there are currently over 20,000 individual materials listed, the take-up to "modify" these materials is still slow, as users move into the new online world of sharing and trading resources. This raises the cultural change issues around how teachers still operate in a cottage industry-type approach compared to today's e-business online requirements.

Increasingly, educational institutions are realising the need to integrate "e-administration" with "e-learning" to produce "e-education". The forms of integration will vary from institution to institution, but there is no doubt that efficiencies can be achieved through using ICT to provide increased levels of student self-service as well as to improve the range of learning models on offer. ICTs also offer opportunities for collaboration between practitioners and indeed provide a format for that collaboration. AEShareNet provides an example of the integration of a range of services that can be used as a platform for various kinds of collaborative endeavours by VET practitioners.

While the core business of AEShareNet is online licensing, it also provides a range of other integrated services such as a discovery mechanism, e-commerce transactions and a link to repositories for preview and/or distribution and fulfilment. The World Intellectual Property Organisation (WIPO) has released a study where it is proposed that Intellectual Property issues are now driving these e-commerce models (WIPO, 2002). The WIPO Report also goes onto argue that the digitization of works has enabled efficient transfer of Intellectual Property over the web and the way in which rights are exchanged is constantly adapting to developments in underlying technologies. This changes the way in which the Australian VET Sector needs to view Product Development Cycles, many of which are partly integrated into learning management systems.

Recognising the need to describe the "landscape" of the various components involved in the VET product development process, the Chair of AEShareNet, Roger Clarke, developed a **Learning Materials Life Cycle Model** to outline the various components involved. These include:

Pre-production Phase	**Production Phase**	**Exploitation Phase**
Appreciation of the need	Marketing Phase	Use
Conception	Promotion	Feedback
Needs Analysis	Cataloguing	
Design	Discovery	
Development/Adaptation	Evaluation	
Copyright Compliance Check	Licensing	
Copyright Clearance Acquisition	Payment	
	Acquisition/fulfilment	
	Book keeping	

Issues that need to be addressed if collaboration is to succeed

Kick-starting collaboration through "re-use" of product

In today's financial environment, where public dollars are scarce, the need for the VET sector to maximize effort and collaborate has never been stronger. This is particularly obvious in the product development field, to avoid "reinventing the wheel" and to maximize building on the efforts of others. With large numbers of institutes delivering against national standards and frameworks, it would seem opportune to maximise these opportunities.

Content developers and teachers need to be encouraged to "re-use" the work of others and "modify" the material to suit their needs. This requires users to undertake a licensing approach to material which then gives them the "rights" to use material under specified and agreed legal conditions. The re-use concept, or "not invented here" as the president of EDUCAUSE outlined is currently an international issue where institutions are working to change the culture and maximize effort, and is an area in which AEShareNet offers a number of innovative solutions.

Cottage industry or publishing facility?

The Open Learning Agency (OLA) in Vancouver, Canada, typifies the issue in moving the culture into a different world. OLA centralized their product development and web services and set targets as a way of trying to move forward with collaboration. They tackled the updating of 83 "old courses" in 2001-2, and increased this target to another 115 in 2002-3. This included a mix of new courses, major revisions, minor revisions and web conversions. This was supported by a range of presentation and style sheet templates which were then able to be used to tailor product for a range of different uses in their repository.

OLA saw this process as moving from a "traditional cottage industry" to a "systemic integrated team based process" (Fripp, 2002, p55). This resulted in a significant time reduction ranging from 18 months development time for the traditional model to under 6 months in the new integrated approach. Importantly, the workflow processes were seen as changing the organization.

Collaboration depends on "Discovery"

Consumers are becoming increasingly exposed to online business facilities which offer a range of services including good search engines, preview facilities and e-commerce transactions. As The Leading Edge Forum (CSC, 2002, p2) outlined, knowledge networks have been exploring better means to enable people to find information for some time, and within the VET Sector the Flexible Learning Advisory Group (FLAG) also recognized this issue by creating an Online Resource Guide (FLAG, 2001) to assist simplify the process. AEShareNet, as the largest VET catalogue in Australia, is now widely used for the "Discovery" function within the sector although there is still a need to ensure a wide product range is available on a continuing basis.

While the "discovery" function is now delivering outcomes, The VET Institutes have not yet come to any agreed process for managing the equivalent of the business sector "preview" facility. Consumers have come to expect a "try before you buy" mentality, but very few VET organisations have been able to provide this functionality. One of the main reasons is that commercialization of their internal product has not been a core business activity and has been primarily a sideline for a few products that can deliver a return on investment. The publishing facilities necessary to provide a preview facility

have been too expensive a venture where the return on investment has been limited; however consumers will doubtless demand comparable online services to that across the wider community.

Business processes needed to support collaboration

Finding a product and negotiating to "re-use" is part of the total product development cycle and must be integrated with business processes such as payment arrangements, distribution processes and fulfilment. While these functionalities appear secondary, they are equally important in the product development cycle as outlined above. Sourcing and evaluating a resource is one task, but there needs to be a process to pay for, track and receive the product through any number of mechanisms.

This is where the e-commerce facility is critical – and educational organisations need to reconsider how these services will move from institutional paper-based purchasing procedures into online shopfronts as a seamless customer service, particularly if coupled to online licensing and preview facilities. AEShareNet has already implemented an e-commerce facility which offers the VET Sector many of the required facilities while still leaving them some flexibility to control how their product range is displayed for viewing and distribution. Alternatively, for those organisations with a smaller product range, a simple model can work just as well through provision of a simple web page with up-to-date contact details.

Models for sharing and collaboration in the product development cycle

Crisp and Webeck (2003, p79) outlined a number of recommendations to assist the VET Sector move forward with new models for sharing and collaboration, particularly in relation to product development, and these included:

- Development of a range of 'standard provisions' for contractor agreements.
- Development of employee 'sign-on' forms that clarify Intellectual Property ownership for use by VET sector institutions and bodies.
- Simple form licence templates should be developed for use by VET sector institutions and bodies – in addition to the *AEShareNet* licence templates – to assist in overcoming the reluctance of third party asset owners in granting appropriate rights.
- The VET sector needs to do its own study as to its particular interoperability and metadata requirements.
- There should now be a concerted effort to package all learning objects with metadata including digital rights management information in such a way that the metadata is 'portable' with the object to which it relates. The collation of metadata information will be an ongoing and resource intensive task. It is important to start this task sooner, so that as many objects as possible are 'visible' to a learning bank when it becomes functional.
- Learning management systems should include basic digital rights management functions as this will encourage collation of DRM information and allow a migration path to more comprehensive systems.
- It is suggested that an education program be undertaken, either alone or as part of a wider programme, to give relevant VET participants guidance as to what can and can't be done with learning materials and a better understanding of what the model entails.

- As a precursor to implementing a comprehensive learning bank system, VET sector participants should be encouraged to use the *AEShareNet* system in relation to learning resources generally.

At the same time education can learn from other businesses.

It is possible to compete and cooperate - competition does not always mean you cannot collaborate on some specifics. It is possible to collaborate through "trading" of learning resources although it is necessary to define exactly where one's competitive edge is vested. Many still believe their competitive edge is in the learning resources used in delivery of educational services. While this may be true in some situations, it is now rarely the case.

The TAFE brand, for instance, or the TAFE value-add services might be the defining thing and it may be possible for TAFE to trade some of its resources to private training organisations and still maintain a market position. Clearly this is a business decision and one that needs to be taken with a view to the size and nature of the particular niche training market and one's own position in it. With on-line services, it is too difficult to merely rely on a geographical model that says "I will trade with a West Australian organisation if I am a Victorian TAFE, but not a Victorian one". To demonstrate that it can be done, the AEShareNet transaction engine has facilitated trading of learning resources between:

- public to public provider, TAFE provider to Public, TAFE provider across state borders
- private Training Organisation to private Training Organisation within and across state borders
- TAFE provider to private Training Organisation within and across state borders
- private Training Organisation to public TAFE provider

with the quickest online "trade" taking under two minutes.

Collaboration can take place in other ways too. For example some Victorian TAFE Institutes provide support services in terms of library and counselling to students of their local private Training Organisation competitors, who are not big enough to provide such services, for a fee. It could be argued that without such collaboration the private provider would attract fewer students who might then otherwise go to TAFE. But in the long run, for both the good of VET business in general and the good of TAFE, collaboration is the way to go perhaps.

Where to next?

While AEShareNet was created initially for the internal Australian vocational education environment, the model evolved in April 2003 to ensure offshore bodies can access Australian materials as well as offer offshore materials for access by Australian organisations. This concept is gaining momentum as the 'AEShareNet Model' now reaches out into cyberspace. If crossing the state boundaries under the Australian federation arrangements could be achieved, maybe the global challenges would not be that much tougher.

If the argument mounted here on collaboration is accepted, then AEShareNet is a unique and vital **collaboration agent** for not just the Australian VET Sector, but for the whole education business.

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