

## **AARE Refereed Paper**

# **Designing responsive online learning environments: approaches to supporting students ®**

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Higher education is undergoing major changes in the learning needs of students. These changes arise from a range of social, economic and technical factors operating across the higher education sector. The use of technology in both teaching and learning is both a response to, and a reason for, these changed practices. Technology provides new ways of catering for the traditional learning needs of students and also enables new forms of support appropriate to technology based delivery. One of the outcomes of the increased use of technology is the development of online approaches to teaching and learning. This requires a reconceptualisation of the role of support mechanisms for students which has implications for the professional development of academic staff.

This paper discusses the characteristics of the online environment and the need for online support. It introduces two dimensions which can be used as a matrix to analyse support mechanisms-embeddedness and consistency. This matrix is then used to consider three forms of online support operating at the University of South Australia - generic, parallel or adjunct and integrated. Examples of both downloadable text-based documents and online workshops in each form are provided. The paper concludes that, although some forms of support are more pedagogically defensible, it is appropriate to provide options across the three forms to ensure that a variety of support opportunities are available to both staff and students.

## **Introduction**

Within Australian universities, student learning support has been conceptualised in a variety of ways. In face-to-face contexts the approach has developed out of counselling models (George and O'Regan, 1998, Quintrell, 1985). It has generally been delivered by specialist staff in separate units in ways independent of, but complementary to, the mainstream teaching and been based, to a significant extent, on concerns for equity and access. Recently there have been moves to provide a more integrated approach by working within the primary delivery of particular subjects (Hicks and George, 1998; Skillen, Merten, Trivett and Percy, 1998). In distance education contexts, support has generally been considered to have a much wider developmental focus. It has been conceived as integral to mainstream teaching and the responsibility of the teaching staff, often in conjunction with instructional designers or course developers, through the development of materials and other learning opportunities (Inglis, 1996).

The convergence of the modes of delivery through online technology and reductions in higher education government funding have been catalysts in rethinking the ways in which effective student support can be offered in all modes of delivery (Hicks and George, 1998). As mainstream approaches to teaching and learning increasingly

include online forms of delivery for all students (Reid, 1999), it is critical that support strategies and techniques respond by developing new forms of support consistent with the opportunities and demands made available by the technology and within the resource constraints of the current climate.

As with more traditional distance education methods, online learning shares a certain level of transparency not possible with the more ephemeral experiences of face-to-face situations. Capturing the teaching in this way enables (perhaps even invites) independent scrutiny of the quality of the teaching/learning processes as well as the content, an experience which many academic staff (understandably) find somewhat daunting. Whatever the mode of learning or the level of scrutiny, it is critical that there be an understanding of what constitutes good teaching. Without this, the possibilities of the technology cannot be harnessed towards the ends which are important to teachers and learners.

This paper provides a framework for the consideration of online student support, particularly but not exclusively, in the context of online subjects and courses. It argues that online learning changes a number of critical aspects of the learning environment, providing new and better opportunities and also creating the need for new learning competencies, which are central to educational success. The conceptualisation of student learning support in online contexts needs to take account of these opportunities, competencies and demands in order to contribute to quality learning experiences. Furthermore, it argues that online support can be effective for any learning context, providing appropriate and timely support for the range of student groups.

### **Current contextual factors**

The current educational climate is the result of a number of intersecting social, economic and technological conditions. In recent times major changes have included: shifts in the nature of work through technological innovations; increased competition in the workforce because of a reduction in manufacturing industry; demands for higher levels of education in the workforce in order to meet the higher skill levels required of new types of employment; greater expectations of individuals to access higher education, and the consequent moves towards mass higher education; innovations in technology which enable greater access to educational opportunities; increasing demands for accountability and productivity in both public and private arenas; and a decreasing capacity or willingness for education costs to be met from the public purse (Aper, 1993; Australian Department of Employment Education and Training Higher Education Division, 1993; Barnett, 1994; Marginson, 1996; Organization for Economic Cooperation and Development, 1993; Reid, 1996).

These changes have challenged universities to introduce teaching and learning strategies which cater for different client groups using forms of delivery which increase access to learning opportunities. In particular, there are demands for the university sector to provide for a larger and more diverse cross-section of the population, to cater for emerging patterns of educational involvement which facilitate lifelong learning and to include technology-based practices related to the field of study as part of the curriculum. Online delivery is seen as one solution to these demands and as a result has been embraced by universities world wide as a mode of delivery. The issue for those involved in student support is how to provide appropriate and timely services which reach the range of students (equity groups, continuing education, re-trainees, mature age, school leavers, International) studying in significantly different contexts (on campus, distance, off shore, workplace) in a

large number of courses (for example, over 400 courses at the University of South Australia), via online methods.

### **Characteristics of the online learning environment**

Online learning, as with any mode of learning, is judged on its effectiveness to provide quality learning experiences to the target student group. Ramsden (1992, pp 96-103) has identified six key principles by which effectiveness of teaching in higher education can be judged. These include: interest and explanation, concern and respect for students and student learning, appropriate assessment and feedback, clear goals and intellectual challenge, independence, control and active engagement, and learning from students.

Based on Ramsden's research, it can be seen that teaching is concerned as much with the process involved as with the content. That is, teaching is not just structured around the content (for example, logic, sequence of presentation, relationships between topics) but it also needs to take into account the personal resources the students bring to the learning experience (for example, previous experience in the topic, gender, culture, age). It is the interaction between these two foci that gives rise to appropriate teaching and learning opportunities which facilitate students in the construction of their own understandings and conceptualisation.

With these understandings in mind, it is clear that online contexts make much greater demands on students and need to be carefully designed in order to maximise the learning opportunities. The online environment provides students with particular opportunities and challenges. It provides new and possibly better opportunities than face-to-face teaching, and also changes the educational process in fundamental ways. This complex learning environment has the following characteristics:

- *computer-mediation*

The computer-mediated nature of the learning experience means that online learning both demands and develops computer literacy. These skills are transferable and can be used in synergistic ways to enhance the overall capacities of the learner educationally as well as in the wider employment or community context. Computer literacies are integral to any online learning and must be addressed in systematic and developmental ways (Lyons-Lee, 1999; McCausland, Wache and Berk, 1999).

- *the potential for accessing large amounts of dynamic information through the WWW*

The WWW enables students to be provided with, or to access by their own initiative, a wide range of information. The democratic nature of the WWW makes this characteristic a two edged sword because of the potential for the information to be of high or low quality, perhaps even harmful. Although the positive dimensions and potential of the WWW are acknowledged, it is also the case that students need high levels of information literacy skills so they can identify, locate, select, retrieve, evaluate and ultimately act upon the information accessed. While traditional academic resources have some degree of quality control in terms of their relevance and accuracy, online resources are more problematic. It can be difficult to ascertain the

authenticity of online materials, and students need to develop critical skills to assist them in determining the value of an online resource and its place within their learning experience. Without the skills to critically assess the information available there is high potential for information overload (Lyons-Lee, 1999) and the unintended use of 'disinformation'. Whilst this can make online learning more challenging, the skills students develop in such activity are of increasing value in the current contemporary social and economic milieu in which they live.

- *the use of hypertext and working with materials in a non linear way*

Non-linear paths through web-based materials can provide great flexibility and freedom (Alexander, 1995), but with that comes the difficulty some students find in navigating their way through this non-linear world. Indeed even if students do not get 'lost', they can easily be distracted from the instructor's intentions. Although such discursions can be educationally valuable, they can also undermine the student's capacity to meet the objectives of the course of learning being undertaken.

- *access to real-world contexts via the internet*

Much of the day-to-day work of the disciplines is now undertaken in online contexts, such as electronic healthcare databases, stock exchange indices, or email discussion lists about topics of mutual concern. Online learning environments allow these facilities to be brought into students' learning experiences. There are significant issues about their appropriate use including 'netiquette' and their application in real world contexts by those still in an apprenticed relationship within the discipline.

- *the capacity to communicate via email and other electronic technologies with lecturers and other students*

Online learning offers new and greater opportunities for group and collaborative learning (Harasim, Hiltz, Teles and Turoff, 1995; Stacey, 1998). Students can interact across geographical boundaries with synchronous interaction, and in addition transcend timezone boundaries with asynchronous interaction, providing increased potential for sharing of ideas in a global context. This has the potential for increased collaboration among students as well as personal reflection within a group learning context.

This kind of enhanced group activity provides increases in the quantitative and qualitative interactions between students and teachers and places additional demands on both teacher and student to manage the group interaction. The management includes facilitating the communication appropriate to a learning context and involves sharing of 'air-time', shaping and framing the educational directions and steering the communication in directions which are productive for these ends, and controlling what can be a significantly extra workload. It also includes dealing with the potential of the

medium to allow inappropriate communication such as flaming and harassment.

A significant issue in electronic learning contexts is related to personal learning styles and the level of 'comfort' students feel with the online environment. While some students find the 'placeless' nature of the virtual context a hindrance, others become seduced by the power of the medium and engage in addictive behaviours which can prevent them from having realistic priorities for the full range of their study commitments

- *new methods for the administration of learning such as submitting assignments and getting results*

The ability to manage their learning in online contexts provides students with significant freedoms in terms of time savings (McCann, Christmass, Nicholson, Stuparich, 1998). For example assignments submitted online can be worked on for longer, do not require a special trip to submit, and can have confidentiality and security benefits. On the other hand, some students are not confident of online mechanisms for undertaking such administrative tasks, and students who lack this confidence may be disadvantaged.

- *networking*

Students who learn online become part of a wide range of global interconnected networks, providing them with new opportunities to participate in and draw knowledge from discourse communities to which they would not previously had access. In order to use these opportunities to full advantage, students need to learn how to make and use appropriate networking contacts. Participating appropriately in listservs and contacting individuals on discussion lists involve particular forms of communicative competence.

- *internationalising the curriculum*

The online environment is global. It is as easy for students on different continents to engage in online debate as students living in the same city. As such it provides a powerful vehicle for the internationalising of the experienced curriculum (Alexander and Blight, 1999). Students need to develop skills in cross cultural communication, and an understanding of cross/inter-cultural issues such as religion, globalisation and imperialism.

The range of learning opportunities and demands arising from the characteristics of online delivery, discussed above, are summarised in Table 1.

<b>Characteristic of the online environment</b>	<b>Learning opportunities</b>	<b>Learning demands</b>
computer-mediation	<ul style="list-style-type: none"> <li>• enhanced capacity</li> </ul>	<ul style="list-style-type: none"> <li>• computer</li> </ul>

	for using digital technologies	literacy skills including some technical capacity
the potential for accessing large amounts of dynamic information through the WWW	<ul style="list-style-type: none"> <li>• availability of enriched, dynamic information</li> <li>• development of transferable critical literacy skills</li> </ul>	<ul style="list-style-type: none"> <li>· information literacy skills particularly evaluation of information</li> </ul>
the use of hypertext and working with materials in a non linear way	<ul style="list-style-type: none"> <li>• flexibility and freedom of learning paths</li> </ul>	<ul style="list-style-type: none"> <li>· ability to navigate and remain focussed on task</li> </ul>
access to real-world contexts via the internet	<ul style="list-style-type: none"> <li>• 'real-world' learning</li> </ul>	<ul style="list-style-type: none"> <li>· netiquette and apprenticeship skills</li> </ul>
the capacity to communicate via email and other electronic technologies with lecturers and other students	<ul style="list-style-type: none"> <li>• increased quantity and quality of interactions</li> <li>• increased potential for independent and 'democratic' interaction</li> <li>• flexibility in time and place of learning</li> <li>• increased personal reflection</li> <li>• collaborative and group learning</li> </ul>	<ul style="list-style-type: none"> <li>· management of time</li> <li>· comfort with the capabilities of the technologies</li> <li>· appropriate personal use of technologies</li> <li>· group dynamics in democratically based forms of interaction including dealing with potential for flaming, harassment and illegal activity</li> </ul>
new methods for the administration of learning eg. submitting assignments, getting results	<ul style="list-style-type: none"> <li>• cost/time effectiveness and flexibility</li> </ul>	<ul style="list-style-type: none"> <li>· computer literacy</li> </ul>
networking	<ul style="list-style-type: none"> <li>• new and wider discourses</li> </ul>	<ul style="list-style-type: none"> <li>· identifying appropriate contacts</li> <li>· strategic use of contacts</li> </ul>
internationalising the curriculum	<ul style="list-style-type: none"> <li>• learning in and for an international context (students,</li> </ul>	<ul style="list-style-type: none"> <li>· cross-cultural communication</li> <li>· cross/inter-cultural</li> </ul>

	content, processes)	issues such as religion, globalisation and imperialism
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**Table 1: Characteristics, learning opportunities and learning demands of online delivery**

**Conceptualising online student support**

Above are outlined the characteristics of the online learning environment and the consequent learning opportunities and demands. The role of student support is to assist students to maximise the opportunities of the environment by providing for their needs. Indeed, these issues need to be considered as integral aspect of the design of the course or subject. Alexander makes the point:

'While we should certainly explore the features of new media as part of an on-going process of being aware of the capabilities of various media, we should also spend equal amounts of time thinking about what our students need to learn, what we know about helping them to learn and then and only then, develop strategies to make it possible for them to learn' (Alexander, 1995 p4)

As with all educational design, these issues are deeply embedded in the discourse of the field of study and also require a range of strategies which are appropriate to the political and institutional structures. Within the University of South Australia, a number the learning demands identified above have been addressed at the University- wide level through a computer literacy strategy (McCausland et al 1999) and graduate qualities initiative (<http://www.unisa.edu.au/usainfo/quality.htm>). The graduate qualities initiative has curriculum design and delivery implications which focus on tailoring student learning in particular subjects and courses in terms of the agreed outcomes.

Within this framework, student support staff have been redeveloping their approaches to supporting students in both online and traditional contexts. The approach (outlined below) has two advantages within the current Australian higher education climate. First, it fits within the current institutional imperatives of increasing the quality of services, with less staff involved in the delivery, in ways which allow greater access for all students. Second, and this is developed in some detail below, it employs design features which embody two significant pedagogical principles. (See Boshier, Mohapi, Moulton, Quayyum, Sadownik and Wilson, 1997; Khan, 1997; McCormack and Jones, 1997; and Simich-Dudgeon, 1998 for detailed discussion of the design of online learning environments.)

The first principle concerns tailoring support to the developmental progression that is expected of students as they move through the course of study. For example the nature and extent of support for commencing students should be quite different from that provided for students immediately prior to graduation. This applies to the acquisition of new skills that are required by the online learning environment as well as the development of learning related to the substantive content of the subject. Laurillard makes the point:

The work on the learning materials should be embedded into a planned learning environment such that the student is supported in the complete learning cycle with respect to some area of the curriculum (Laurillard, 1993, p216).

Second, the educational design must develop lifelong learning skills rather than a dependency on the support resources. The online learning environment may unintentionally encourage students to depend on support and on surface learning approaches. For example, because the technology has the capacity for quick responses to questions, there is the potential for students to come to rely on the online feedback from peers or teaching staff prior to undertaking an individual assessment task. Further, the ease of gathering large amounts of information may be seen as a substitute for a critical analysis of information.

In applying these two principles within the design and development of online support mechanisms, there are two important dimensions with respect to their interface with subject-based learning experiences. These considerations are now discussed.

### **Two external dimensions: embeddedness and consistency**

In order to conceptualise the interaction of student support with this complex learning environment, we introduce two concepts: embeddedness and consistency. Both these dimensions are concerned with links to other online materials. Embeddedness is concerned with the electronic links between the support materials and the immediate point of interest—the subject, or aspect of the subject to which it relates; consistency is the extent to which support materials reflect, or are shaped by, the subject to which they relate.

If embeddedness and consistency are seen as two axes of a matrix, it is possible to map any kind of support mechanism in terms of both dimensions. One end of the embeddedness axis has generic, stand alone materials that have no immediate relationship to the primary delivery of a subject. They may be on a home page or a web page belonging to another part of the organisation, or even at another institution. At the other end of the axis, are materials which make an electronic link into the materials at the point where students need it in a way which is seamless to the student. The consistency axis ranges from support mechanisms that have no relationship to the process and content of the subject, to those where the mechanism is integrated into the primary learning experience, using the terms, concepts and other learning experiences of the subject in fundamental ways.

An example of support that is low in embeddedness and low in consistency might be a stand-alone website on essay writing that is mounted independently of the online learning that students undertake. This generic support can be more embedded by simply placing links to it from appropriate places within the learning resources of a subject, such as in the description of an essay writing task. If this resource was customised to use the particular essay question as a starting point, or used the particular processes and conventions (eg referencing methods, writing genres, etc) required in the particular subject, then the support becomes more consistent with the subject for which it is to be used. Stand-alone customised support is also possible. Whilst its distance from the locus of instruction makes it somewhat problematic, it is certainly possible for learning support to be constructed, outside the subject, whilst still attempting to mirror the particular learning requirements of the subject. This is an example of support that is highly consistent but low in embeddedness



Figure 1 depicts the two dimensions along the axes resulting in a matrix which categorises the types of online learning support possible.

<b>Embeddedness</b>		
<b>High</b>	<b>Generic support within a subject</b>  For example, essay writing information provided in conjunction with assessment information	<b>Customised support within subject</b>  For example, essay writing assistance that is specifically related to the discourse learning processes of a particular subject
<b>Low</b>	<b>Stand alone support generic support</b>  For example: essay writing information on a home page	<b>Stand-alone customised support</b>  For example, essay writing information that is highly related to the assignment but is not available to the student at the point of need.
	<b>Low</b>	<b>High</b>

Consistency

**Figure 1: Embeddedness vs consistency of online support**

The above matrix enables staff involved in the provision of support to construct a range of effective means of reaching the maximum number of students with the most appropriate support. Although we would want to contend that learning support that is highly embedded and highly consistent is most effective, we understand that the realities of working in higher education contexts do not always provide opportunities to work in such close professional relationships with Division/faculty-based academic staff. By providing a range of resources through different mechanisms, it is possible to meet the needs of students through activities and information which range from support which has high embeddedness and high consistency, to that which has low embeddedness and low consistency. Even those mechanisms which have low embeddedness and low consistency provide useful support which can be effective.

In the next section we outline the approaches to online student support available at the University of South Australia and apply the above framework in its consideration.

### **Approaches to providing student support in an online learning environment**

Over time many different approaches and orientations to supporting student learning have been developed in universities. These have been influenced by a range of local, national and international factors. Seven approaches to supporting student learning (for on and off campus students) at the University

of South Australia have been identified and critically examined in relation to their strategic contribution to the University (Hicks and George, 1998). These include individual support, generic programs, faculty based programs, programs for targeted groups, supplemental instruction, specific subjects for credit and an integrated approach to student learning support. While all these approaches have their particular strengths and histories, the integrated approach to student learning support has proved to be particularly valuable at the University of South Australia. It involves focusing on professional development of the Division/faculty-based academic staff rather than directly on the students or the materials being developed.

These seven approaches have been considered in the context of online delivery at the University of South Australia and they have been reconceptualised into three forms of online support: generic; parallel and adjunct; and integrated. These are not mutually exclusive forms and some examples can be used across categories. Forms may be combined in a subject or course to produce a smorgasbord of support options. Unlike other modes of delivery (face-to-face and distance) the degree of integration varies more widely due to the nature of the embeddedness of the medium. A summary of these approaches has been given in Table 2.

The support can take the form of downloadable text-based documents or interactive online workshops. Downloadable documents are valuable as references for students wanting information about learning requirements. Interactive online workshops, however, provide a much richer learning experience where the focus is on the processes of learning and the students' engagement with this. These workshops are designed to replicate the cognitive steps involved in these processes and are usually associated with assessment requirements.

### **Generic resources**

The term generic refers to the general applicability of the support resources and is related to the notion of consistency. Resources are developed which are generic to a range of learning strategies or assessment requirements for university study. These may be available to students in the following contexts: cross-disciplinary, cross-institutional, cross-faculty and discipline specific. Below are examples of both downloadable text-based documents and interactive online workshops.

- *cross disciplinary*

At the University of South Australia a referencing leaflet has been produced for use by students across all disciplines of the University (FLCa, 1998).

<http://www-i.roma.unisa.edu.au/flc/sls/publicitns/flc-ref/index.asp>

An online workshop for essay writing has been developed for use by students across a wide range of disciplines (Kokkinn and O'Regan, 1999).

<http://www.unisanet.unisa.edu.au/essaywriting/>)

- *cross-institutional*

The University of Melbourne and the University of Western Sydney - McCarthur have combined to create a site called *Unilearning* where generic materials from a range of institutions are available (Unilearning, 1999).

<http://www.macarthur.uws.edu.au/assa/Unilearning/welcome.html>

- *cross faculty*

Study advisers and faculty staff worked to construct a site which met the needs of research students across the Faculty of Health and Biomedical Science (McLean, 1998).

<http://www.roma.unisa.edu.au/flc/sls/publictns/researchwrite/welcome.htm>

An online workshop on the transition to university studies has been developed to be used across all faculties (Frangiosa, 1999).

<http://www.unisanet.unisa.edu.au/transition/>

- *discipline specific*

Information about writing a practical report in the discipline of engineering has been produced by study advisers in collaboration with discipline-based staff (FLCb, 1998).

<http://www-i.roma.unisa.edu.au/flc/sls/publictns/wreports/>

These materials are not designed specifically to reflect the content and processes of the subject, although they may have generic application to subjects. Indeed, they are usually written in ways that give them appeal across a range of courses and subjects. In terms of the matrix above, the extent of consistency with a subject is low. However, it is possible to embed the resources within a subject at the point where a student needs to know how to undertake a particular activity such as give a presentation, write a report or give a seminar. While some students can apply the skills/strategies developed in such resources to a wide range of subjects/topics, many students find this transfer of skills difficult and the level of generality too broad.

### **Parallel and adjunct resources**

These online programs are more closely aligned with the content and process of the subject and have usually been developed in parallel with the primary delivery of the subject but sit parallel to its delivery. They are usually developed by learning advisers with minimal involvement of the Division/faculty-based academic staff. In terms of the matrix above, these support materials have some degree of consistency and can be either embedded or not. Parallel and adjunct programs can be within traditional programs or online delivery, and

focussed on courses, subjects and particular target groups. Below are examples of both downloadable text-based documents and interactive online workshops.

- *courses*

In health science a research skills site has been developed in collaboration with Division-based staff (McLean, 1998)

<http://www.roma.unisa.edu.au/flc/sls/publicitns/researchwrite/welcome.htm>

- *subjects*

Online workshops have been developed to assist students with particular assignments on:

- planning and writing a reflective journal summary in a nursing subject (Kokkinn, 1999).

<http://www.unisanet.unisa.edu.au/12152a/>

- oral history in a nursing subject (O'Regan, 1999)

<http://www.unisanet.unisa.edu.au/oralhistory/>

- engineering management case study (Berk, 1999)

<http://www.roma.unisa.edu.au/10769/>

- an online nursing subject has a 'study room' (Smith, 1999) <http://www.unisanet.unisa.edu.au/12152/info.htm>.

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- *particular target groups*

An online workshop has been developed for NESB nursing students to prepare them for clinical placement (Hussin, 1999)

<http://www.roma.unisa.edu.au/clinical/>

These online workshops have a range of features of consistency or integration. Some of the skills may be quite generic and others are discipline-specific. The critical point here is that the basic program is generic with modifications for the subject/course/group targeted. Even though materials of this nature are more closely related to the context of the subject and the needs of the students there is still some distance between the materials and the context. However the online learning medium allows greater flexibility and embeddedness of these materials than other mediums of delivery.

### **Integrated resources**

In this approach professional development staff and learning advisers work closely with teaching staff at the curriculum development level to ensure that the skills and processes needed by students to successfully complete a subject which is offered online are integrated in all facets of subject design. Once again here can be different levels of integration. Some of this support may be explicit (as outlined in the two approaches above) but the aim here is to make the support both embedded and consistent in terms of the above matrix. The value of this approach is that the responsibility for the support rests with the Division/faculty-based academic staff member and the aim is the transformation of the staff member as they are supported through making sound pedagogical decisions.

The major issue here is the highly labour intensive nature of the task. For these reasons it is best undertaken where there are large numbers of students who can take advantage of the effort involved. Further, it requires a high degree of maintenance and so it is advisable to focus on assessment and the related activities so that the effort has maximum benefit for students.

- o integrated support is being developed in collaboration with Division/faculty-based staff in the online Master of Language and Literacy Education (University of South Australia, 1999)

<http://www.unisanet.unisa.edu.au/mliteracy/>

Table 2 is a summary of the characteristics of the three forms of online support with the advantages and disadvantages outlined.

<b>Approaches</b>	<b>Characteristics</b>	<b>Advantages</b>	<b>Disadvantages</b>
Generic	<ul style="list-style-type: none"> <li>• stand alone</li> <li>• cross and inter-institutional applicability</li> </ul>	<ul style="list-style-type: none"> <li>· can be used by students from a range of universities</li> <li>· can be applied on a more institutional wide basis</li> <li>· can be embedded at point of need</li> </ul> <p>little maintenance</p>	<ul style="list-style-type: none"> <li>• not consistent with the content and processes of the subject</li> <li>• often too general without the specific detail required</li> </ul>
Parallel/Adjunct	<ul style="list-style-type: none"> <li>• closely aligned with the subject/course</li> <li>• developed in parallel</li> </ul>	<ul style="list-style-type: none"> <li>· specifically focuses on particular groups of students, subjects and /or courses</li> <li>· can be embedded at point of need</li> </ul>	<ul style="list-style-type: none"> <li>• only useful if task is generic</li> <li>• may be misleading if terms and ideas used in highly specific</li> </ul>

			<ul style="list-style-type: none"> <li>ways</li> <li>• some maintenance required</li> </ul>
Integrated	<ul style="list-style-type: none"> <li>• close collaboration between teaching staff and support staff</li> <li>• totally seamless with subject</li> </ul>	<ul style="list-style-type: none"> <li>· fully contextualised</li> <li>· seamless for student</li> <li>· staff member engages in developmental processes</li> </ul>	<ul style="list-style-type: none"> <li>· relies on collaboration between teaching staff and support staff</li> <li>· labour intensive</li> <li>· significant maintenance required</li> </ul>

**Table 2: Summary of approaches to student learning support in an online learning environment**

**Conclusion**

Online learning provides significant opportunities for education. The characteristics of this mode of delivery give rise to a number of learning demands which need to be addressed in the learning environment. At the University of South Australia, one of the significant initiatives in this respect has been the development of three forms of online support for students. The development of these forms has taken into account the need for support to be both developmental and timely. That is, students need to be supported in ways which are appropriate to their stage of development as students, as well as the particular learning requirements of the assessment. When the learning needs are conceptualised in this way it is possible to consider any support mechanism in terms of a matrix of embeddedness and consistency. Support which is both highly embedded in the primary delivery of the subject and highly consistent with the content and processes of the subject, provides quality learning opportunities.

At the University of South Australia, three forms of support-generic, parallel or adjunct and integrated-have been developed. This paper has analysed these forms of support in terms of their embeddedness and consistency and provided examples of the different forms. It concludes that the most useful and pragmatic approach is to provide a smorgasbord of options so that both students and academic staff are able to access the support available to improve student learning.

## References

Alexander, S (1995) 'Teaching and Learning on the World Wide Web' *AusWeb95: Education - Learning - Teaching and Learning on the World Wide Web*, conference paper,  
URL: <http://www.scu.edu.au/sponsored/ausweb/ausweb95/papers/education2/alexander/>

Alexander, S and Blight, D (1996) *Technology in International Education*, [http://www.iim.uts.edu.au/whatsnew/wn\\_oct96/IDP.shtml/](http://www.iim.uts.edu.au/whatsnew/wn_oct96/IDP.shtml/)

Aper, J. (1993) 'Higher education and the state: accountability and the roots of student outcomes assessment.' *Higher Education management* 5 (3).

Australian Department of Employment, Education and Training Higher Education Division (1993). National report on Australia's higher education sector 21 May 1993, Canberra, Australian Department of Employment, Education and Training Higher Education Division

Barnett, R. (1994) *The limits of competence: knowledge, higher education and society*. Buckingham, The Society for Research into Higher Education & Open University.

Berk, M (1999) *Engineering Implementation: Writing an Engineering Management Case Study*, Flexible Learning Centre, University of South Australia

<http://www.roma.unisa.edu.au/10769/>

Boshier, R; Mohapi, M; Moulton, G; Qayyum, A; Sadownik, L; and Wilson, M. (1997). 'Best and worst dressed web courses: Strutting into the 21st century in comfort and style' *Distance Education*. Volume 18, Number 2.

George, R and O'Regan, K (1998) 'A Professional Development Model of Student Support' Conference paper, 1998 *HERDSA Annual International Conference Transformation in Higher Education* Auckland New Zealand, 7-10 July 1998

FLCa, (1998) *Referencing leaflet*, Flexible Learning Centre, University of South Australia

<http://www-i.roma.unisa.edu.au/flc/sls/publicitns/flc-ref/index.asp>

FLCb, (1998) *Writing practical reports*, Flexible Learning Centre, University of South Australia

<http://www-i.roma.unisa.edu.au/flc/sls/publicitns/wreports/>

Frangiosa, R, (1999) *Making the Transition to University Studies*, Online workshop, Flexible Learning Centre, University of South Australia

<http://www.unisanet.unisa.edu.au/transition/>

George, R, Hipp H, Love, A, Stevenson, M (1997) *Learning resources for students studying at a distance*. Adelaide, University of South Australia, Flexible Learning Centre

Harasim, L, Hiltz, S, Teles, L and Turoff, M, (1995) *Learning Networks - a field guide to teaching and learning online*, MIT Press, Cambridge

Hicks, M. and George, R. (1998). 'A strategic perspective on approaches to student

learning support at the University of South Australia' Conference paper, 1998 *HERDSA Annual International Conference Transformation in Higher Education* Auckland New Zealand, 7-10 July 1998

Hussin, V (1999) *Communication Skills Workshop For First Year NESB Nursing Students*, Online workshop, Flexible Learning Centre, University of South Australia

<http://www.roma.unisa.edu.au/clinical/>

Inglis, A. (1996) 'Teaching-learning specialists' conceptions of their role in the design of distance learning packages' *Distance Education* v 17, no 2.

Khan, B.H. (1997) *Web-Based Instruction* Englewood Cliffs, N.J, Educational Technology Publications

Kokkinn, B (1999) *Guide to writing a reflective journal summary* Online workshop, Flexible Learning Centre, University of South Australia

<http://www.unisanet.unisa.edu.au/12152a/>

Kokkinn, B and O'Regan, K, (1999) *Guide to Writing Essays*, Online workshop, Flexible Learning Centre, University of South Australia

<http://www.unisanet.unisa.edu.au/essaywriting/>

Lyons-Lee, L (1999) 'Using the World Wide Web in the Classroom' *HERDSA News*, p27-28

Marginson, S. (1995) 'Markets in higher education: Australia' *Academic work* J Smyth. Buckingham, Society for Research into Higher Education. Pages 17-38.

McCann, D; Christmass, J; Nicholson, P; Stuparich, J (1998) *Educational Technology in Higher Education*, Occasional Paper, Department of Employment, Education, Training and Youth Affairs, Commonwealth of Australia



McCausland, H, Wache, D, Berk, M (1999) Computer literacy: an orientation strategy, its implementation and outcomes, Paper in progress *HERDSA, Cornerstones, What do we value in higher education?* Melbourne

McCormack, C. and Jones, D. (1997) *Building a Web-Based Education System*. New York, Wiley.

McLean, T (1998) *Research Writing Skills*, Flexible Learning Centre, University of South Australia

<http://www.roma.unisa.edu.au/flc/sls/publicitns/researchwrite/welcome.htm>

O'Regan, K (1999), *Guide to writing your oral history report*, Online workshop, Flexible Learning Centre, University of South Australia

<http://www.unisanet.unisa.edu.au/oralhistory/>

Organization for Economic Cooperation and Development (1993) [Proceedings of the conference] *The transition from elite to mass higher education/ DEET*, Higher Education Division/ OECD. Sydney, AGPS.

Quintrell, N. (1985). A summary of the provision of language and learning skills support

in Australian universities: 1985. In N. Quintrell (ed) *Learning to learn: Language and study skills in context: proceedings of the sixth annual Australasian study skills conference\_2<sup>nd</sup>* ed, Adelaide: Flinders University of South Australia.

Reid, Ian (1996) *Higher education or education for hire?: language and values in Australian Universities*, Rockhampton, CQU Press.

Reid, Ian C. (1999) "Beyond Models: Developing a University Strategy for Online Instruction" *Journal of Asynchronous Learning Networks* Volume 3, Issue 1.

Skillen, J, Merten, M, Trivett, N and Percy, A (1998) *The IDEALL approach to Learning Development: a model for fostering improved literacy and learning outcomes for students*, AARE conference, University of Adelaide

Simich-Dudgeon, C. (1998). 'Developing a college web-based course: lessons learned' *Distance Education* Volume 19, Number 2.

Smith, C (1999) *Concepts of Professional Nursing Inquiry*, Online Nursing Subject, Flexible Learning Centre, University of South Australia

<http://www.unisanet.unisa.edu.au/12152/info.htm>

Unilearning, (1999) Learning Resources for University Students: A collaborative project between the University of Melbourne and University of Western Sydney - McCarthur

<http://www.macarthur.uws.edu.au/assa/Unilearning/welcome.html>

University of South Australia, (1999) Master of Language and Literacy Education - Course information page

<http://www.unisanet.unisa.edu.au/mliteracy/>