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Ronline: mediating artefacts to support technology facilitated learning

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Abstract: *This paper describes a suite of tools designed to provide teachers with generic content-free online learning activities that can provide interactive and engaging learning environments. The paper describes the tools and the results from a survey conducted among users to explore the utility of the system and their perceptions of the learning opportunities afforded by such tools. Feedback suggests many opportunities to be had from the use of such tools as mediating artefacts able to provide teachers with resources to support engaging and interactive technology-based settings for their students.*

Keywords: *Technology-based learning, learning supports, online learning*

Introduction

The widespread implementation and increasing use of virtual learning environments (VLE) and courseware management systems (CMS) in higher education has led to demand from teachers and administrators for effective guidance on good pedagogical practice (Beetham, 2004). The plethora of technology-supports and digital tools and resources for learning, has garnered strong interest among teachers in the use of technology as an integral and mainstream component of course delivery. Contemporary practice sees many looking for guidance in the design of effective e-learning strategies and activities.

Teachers in higher education today find themselves with a plethora of tools and learning theories to support the design and delivery of their courses. For many the choices are overwhelming and many find it confusing to know what to choose and how to best implement new ideas in their classroom teaching (Angeli, 2005).

It would appear that technical developments have proceeded at a pace beyond those of pedagogy and implementation. We now have a scenario where teachers and administrators can have the finest tools for elearning, but little idea of how to best use them to create effective learning settings. There still exists a significant gap between contemporary educational theory and implementation (Conole, 2005). People seeking to solve this problem have suggested what is needed are proven implementation strategies and processes for teachers to follow, learning designs (eg. Britain, 2004).

Supporting Technology Use

Whilst teachers can often see the value in using a technology-supported learning environment, it is a challenge for many teachers to find appropriate methods and learning designs to support

the forms of learner engagement required to achieve their intended learning outcomes. Teachers can aim to promote purposeful inquiry in their pedagogical designs but do not know appropriate methods and practices for structuring and supporting students' inquiry efforts (Lakkala, Lallimo & Hakkarainen, 2005).

One solution to this problem is proffered by Conole (in press) who argues the need for mediating artefacts as scaffolds to support teachers (and students) in making informed decisions in the choice of learning approaches. For teachers MAs help them to make pedagogically informed learning activities, for students MAs help them to undertake particular learning activities to achieve specific learning outcomes.

MAs can take many forms ranging from particular resources for teachers to use eg. narratives, case studies, examples through expert guidance, knowledge building (expert others) to guides eg. tips and tricks, demonstrations, frequently asked questions (FAQs) to scheme, toolkits, models and patterns (electronic performance support systems). Which artefacts are appropriate in which circumstances for particular users? There is sound evidence that teachers can adopt and adapt pre-designed MAs, but there is scant evidence of generic mediating artefacts being developed and shared without specific subject content (Beetham, 2004).

Content-free learning tools

One suite of mediating artefacts that does exist and which does not include subject specific content is the Ronline suite which is the subject of this paper. The set of tools was initially developed in 1998 for use in the author's own classroom and online learning and extended to enable other teachers to employ its tools (Oliver, Omari & Herrington, 1998). The suite of tools uses Internet and Web technologies to provide interactive learning activities that encourage and support independent, collaborative and reflective learning. The suite was redeveloped in 2004 to take advantage of the more powerful database features supported by PHP/MySQL and now comprises 14 individual tools offering a range of discrete learning activities.

The tools enable teachers to create customised Web-based learning activities that are accessed by Web links provided to learners through the teachers' institutional CMS or through email. The system resides on a server in the author's institution where the files are set up and stored as teachers implement the system. Student data and activities also reside on this server. The server has been funded by a variety of research grants and continues to support research activities at the host institution and among many of its teacher users.

This paper reports on a small study undertaken in 2005 to investigate how teachers were using the system to discover whether the concept of content-free generic tools as mediating artefacts might provide a means for encouraging and supporting technology-enabled learning in higher education.

The Ronline system

The Ronline suite of tools has been developed over a period of years and provides teachers with access to a raft of interactive tools to support a number of forms of Web-based learning. All the tools were originally designed by the author for use in his own university teaching and the system has evolved across the years from a personal suite of tools to a system that provides free access to the tools to any interested teacher.

All the tools in the suite are content-free applications which teachers use to build activities for their learners. The system provides an administrative function and a student function for each tool. The administrative function allows the teacher to customise the environment to suit his or her needs and the student function provides the students with access to the tool. Each of the functions has a unique Web link and this is all that is needed to access the tool.

To demonstrate the system, it is expedient to follow a teacher setting up an activity, for example an online debate. The person first of all access the Ronline site at http://aragorn.scam.ecu.edu.au/ronline/ronline.php This links to a login page (Fig 1.) The teacher logs in with his or her name and password. When a person first uses the system, they choose their own name and password. Access is free to any educational user. And if the use forgets his password and username, their email address is sufficient to allow the system to send it to them.

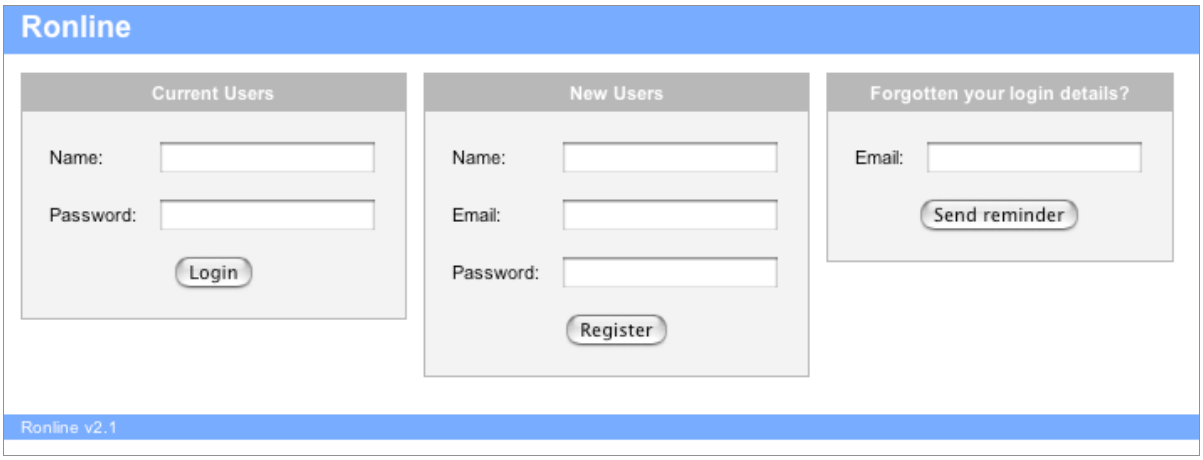

Figure 1: Accessing Ronline (http://aragorn.scam.ecu.edu.au/ronline/ronline.php)

When a person logs into Ronline, the User Menu shows. This menu is used to edit one's personal details, to view previous activities created with the tools and to make new activities. The system operates in a totally automated fashion allowing users to create and use activities using the tools suite.

Figure 2: Ronline User Menu

After logging in, users can see a list of the activities they have created along with a number of functions. Options exist to access the activities through Web links, to edit the activities (view and change the activity name and/or password) or to delete unwanted activities. (Figure 3).

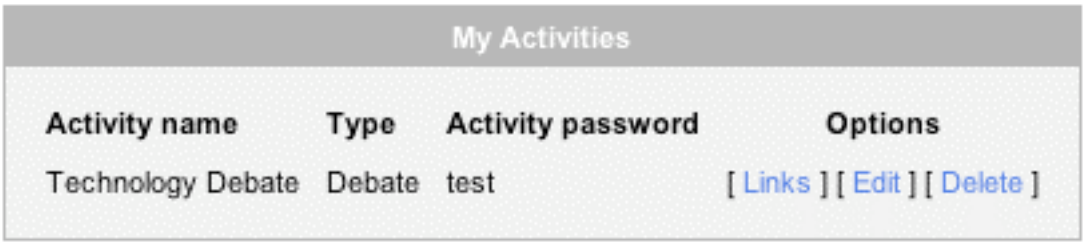

Figure 3: **Ronline Sample User Activity List**

When users create a new activity, they must first name the activity and choose the type. The user enters a password for the activity (to be used whenever the activity is to be edited or viewed) and once these steps have been completed, the user is able to commence the task of customizing and creating the activity he or she wishes to use.

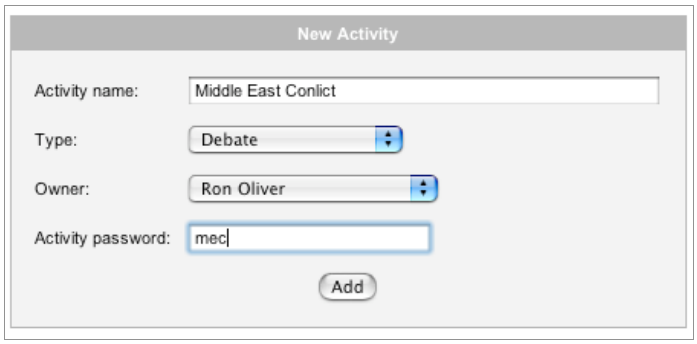

Figure 4: **Creating a new activity**

Once the activity has been created, it shows in the users' activity list. Choosing LINKS from the Activity List provides the user with links to the administration function and the student function (Figure 5).

Figure 5: The links to the administration page and the student page

Clicking on the Admin login takes the user to the Admin setup. For the debate, for example, this is a very simple process. The user needs to decide what levels of access the students will need, the debate title and the instruction. The system has quite a powerful access function. A teacher can set up an activity with no groups or users (Level 1: anyone can access the activity), with groups but no users (Level 2: enables a single cohort to be split into groups.

The option lets the teacher set how many groups), with groups and users (Level 3: enables a single cohort to be split into a number of groups and for each group to have set members) and classes, groups and users (Level 4: enables a teacher to split a cohort into a number of classes each of which has a number of groups and each of which has set members). With the debate tool, the user needs to add the topic and the instructions and the debate is ready to go (Figure 6).

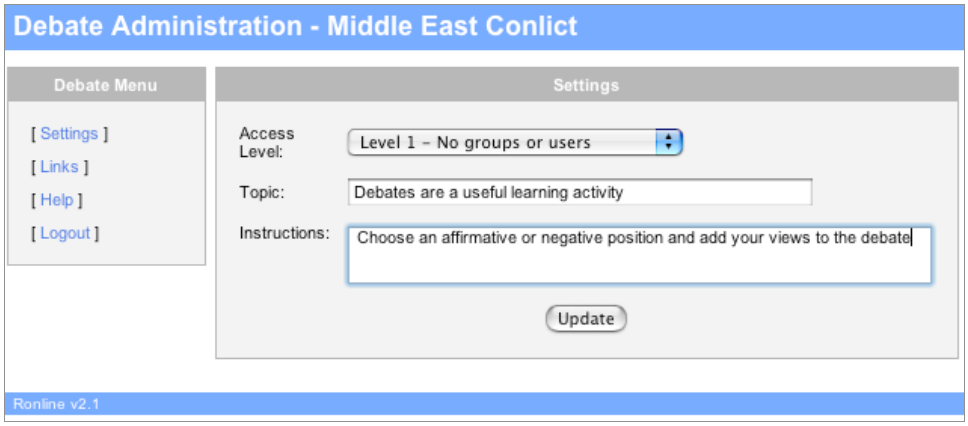

Figure 6: Creating a debate activity

The students need to be given the URL of the student page, (from the Links option) and when the student clicks this link, the debate page opens displaying the activity that has been planned. (Figure 7).

Figure 7: The student view of the debate activity

With the debating tool, students enter their arguments together with their name and email and when they hit the post button, their arguments display in the windows for others to see. The teacher can provide some incentive for participation and the debate can be left to run over a period of days. When the teacher decides the debate is complete, students can be encouraged to review the debate. Another link on the student page lets students enter their perceptions of the winning side and this adds another dimension to the debate activity.

The Ronline suite of tools currently supports 12 tools like the debating tool. The available

tools are described in Table 1. The various tools all provide content free environments for teachers to create online activities that promote learner reflection, communication and collaboration. The tool suite is continually evolving as new ideas come up and new possibilities emerge from technology advancements.

Table 1: Tool types in the Ronline suite

Tool	Description
Debating Tool.	A tool designed to support online debating.
URL Posting Tool.	A tool enabling students to post URLS to a public board.
Web Board.	An elementary Web Board that can be used to enable students to post and read responses among themselves.
Blog.	A tool enabling students to keep a reflective journal or blog in either a private or public way.
Filespace.	A tool that enables students to post and share files in a public forum. Accepts uploads and downloads of word, and pdf files.
Webpoll.	A tool supporting online polls and reviews..
List Tool.	Useful for creating an online classlist.
Roleplay Tool.	A tool to support role-playing as an online activity.
Mid-Unit Review.	A customised questionnaire seeking feedback from learners.
End-of-Unit Review.	A customised questionnaire seeking feedback from learners and intended to be used to review units upon completion.
Supervision.	A tool designed to enable supervisors of project and thesis students to manage and monitor student progress online.
Problem Submission.	A tool designed to support elementary problem-based learning in online settings.

Exploring teacher use of the Ronline system

In 2005, a survey was conducted among the teachers using Ronline to explore their perceptions of the system as a learning support. The survey also sought to discover aspects of its usage that might be improved or modified. The author had showcased the system several times at conferences and workshops and invited interested teachers to make use of its free access. Across 2004 and 2005, over 150 teachers from institutions throughout the world had registered to use the system and among them had created over 350 learning activities.

Teachers were contacted using email and sent an online questionnaire developed using the questionnaire tool. Twenty four replies were received to the request for feedback from the one hundred and fifty users. The response rate was very low but those who did reply were clearly reflective users and provided insightful feedback.

Results

Among the respondents, the majority were from the university sector and making regular use of the suite as a support for their teaching. Most were creating debate, questionnaire and blogging tools as supports for their teaching and including the links to the tools in the materials they provided to their students on their institution CMS.

Users were asked how long it took them to create an activity using the Ronline suite. Whilst the system is relatively simple in its design and approach, aspects of its functionality such as

the group feature and the administration and student elements could be complex for new users to deal with. The feedback indicated that the users did have to spend some time initially to set up their first activity and to familiarize themselves with the features but once the hurdle had been overcome subsequent activities could be developed very quickly. Selected responses to this question are shown below:

a. How long did it take you to set up the tool(s) for your students' use?

- *15-20 minutes*
- *About one hour all up (as I needed to do a bit of cutting and pasting to add extra questions in the mid-semester evaluations).*
- *Probably 15 minutes, once I sorted out the differences between the various tools and the Admin vs User interfaces. The time-consuming part was due to my own indecision about how best to incorporate*
- *5 mins*
- *10 minutes*
- *it takes some time to organise, as I have to find the person in the Teaching and Learning Department to attach it to my WebCt site - chasing around time.*
- *First time -- maybe 30 minutes. Subsequent debates, 5 minutes max.*
- *a few minutes*
- *The previous version of the ronline tools seemed a little harder to set up than the current version. How long? Hm. Not very. 20 mins or so?*
- *very quick and easy*

In response to questions about the learning advantages their students derived from use of tools, teachers' responses were very positive.

b. What was your experience from a learning perspective? Can you give some examples of how use of the tool(s) contributed to the students' learning experience?

- *We used the mid-semester evaluation to evaluate the course half way through. Their feedback has allowed the lecturer to already implement changes that will hopefully enhance the students' learning experience.*
- *The debate is currently being used to get students to debate a topical issue from the course (online; the debate is open for one week; students have to go in during the week to add arguments and enhance the debate). The questionnaire was used to evaluate a synchronous online writing forum*
- *Motor skills for students that have not had much computer access, yes in this day and age it does happen.*
- *I used the debate tool using a controversial topic, and I allocated students to each side of the debate argument. This is very interesting as students quite often have to argue for a side of argumentation that they do not believe in. This approach tends to reinforce in students that opposing views also have reasoned, logical, and research backed substance.*
- *Immediacy of feedback.*
- *An informal poll of the students' experience using the tool indicates that the majority really enjoyed the layout of the debate tool. The majority of the course's online discussion uses the threaded discussion tool*
- *The debate tool is useful, but you have to be careful that the task / question is designed in such a way that the debate isn't too polarised. I think some topics aren't benefited by polarising the topic. Students generally enjoy the debates and participation rates are high. There has been a comment that the blogging tool sort of replaces a more traditional 'reflective journal' idea, and there's been some discussion as to best practice in using*

blogging.
- *Engage learners, some collaborative learning, support constructivist theory*
- *Users were asked about the concept of content-free tools and how useful others might find them. Every response was very positive suggesting that the teachers thought the concept had merit and deserved continued support.*

c. What do you think of the concept of this suite of tools? How useful would they be to all teachers in your institution?
- *I think the tools are great. They're easy to set up and provide variety for academics (ie, there is a good choice of tools and usually a number of them are suitable for most courses).*
- *They have value beyond just this course and institution. Their functionality and ease of use should make them useful to people outside the institution.*
- *Very good tool set, with the feedback from this, I'm sure it could be rolled out*
- *Fantastic and very useful - it is nice to be able to work outside an LMS*
- *I have only used the online debate function. Is there more? where can I find out about them?*
- *Excellent. Well thought out and simple to use. No unnecessary complexity that is present in many fuller-featured tools*
- *Wonderful! We have a considerable amount of work to do before we launch into online learning. I imagine that when we are ready they will be very useful.*
- *I'm not in a position to comment on the full suite of the tools you've created, but the debate tool would without question be useful for a number of instructors/faculty teaching online.*
- *surely very useful. so much can be done here. All sorts of questions can be asked and so much information can be gathered by putting in a few precise questions*
- *fantastic - wish I could figure them out easily or quickly.*
- *This suite is great. I think that there is general resistance though to technologies in education at this institution. However, having staff participate in debates and seeing how easy they are to use tends to encourage them to set up their own debates & blogging. Most lecturers here wouldn't know about this suite, though, and a bit of training might be required.*
- *Excellent, very useful, simplicity makes them easy to use even for the digital migrant!*

It is recognized that the evaluation presented is by no means a deep and detailed investigation of the system and how it is used. The intention was more to explore the utility and efficacy of the system among external users. We have undertaken quite detailed studies ourselves previously of many of the tools and have reported on the learning outcomes and opportunities that have been achieved (eg. Oliver & Omari, 2001; Oliver & McLoughlin, 2001).

In the current review, some very sound suggestions for improvements and enhancements were provided which have been noted and will form part of the continual review and development we are engaged in. The majority of the comments suggested strategies for improving functionality concerning the reuse of activities that teachers had made. Several of the responses alluded to difficulties with descriptions used and ambiguities in terms that will be very easy to improve.

Summary and Conclusions

This paper has described a novel suite of online tools, Ronline, that have been developed to support teachers' implementation of engaging and interactive technology-supported learning

activities. The paper reports on a survey undertaken to explore aspects influencing teachers' use of the system and their perceptions of this form of mediating artefact as a support for teachers to develop quality learning environments. The survey provided positive evidence that teachers do find these forms of tools useful. Feedback suggested a learning curve needed to be overcome to develop familiarity with the system but that once teachers had learnt this skill, they tended to make regular use of the tools. The tools were seen to operate seamlessly with existing technology eg. WebCT and Blackboard and most teachers were very positive about the learning opportunities and outcomes the tools provided.

Feedback from the teachers will be used to improve aspects of the system functionality and the suite will continue to be supported and grown. Any reader interested in exploring and using the tools themselves is most welcome to use the system. Accessing the URL http://aragorn.scam.ecu.edu.au/ronline/ronline.php provides access to the tools and a comprehensive set of learning and teaching guides. Teachers' responses and the extent and scope of use of this small system does appear to indicate that generic content-free learning designs as provided by Ronline could go a long way to supporting teachers' use of technology in ways that enhance and improve learning outcomes.

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