

## Taking Interactive Technologies to the Next Level

Even in a full-time role as Instructional Technologist at MCLI, I struggle to stay keep pace with the trends of technology. The most effective way for me to stay current is to be involved in hands-on technology projects. This is what yields worthwhile information to share with our system. Otherwise I would just be echoing articles and second-hand knowledge.

It has grown difficult to devote time needed to learn new technologies, as I spend more time managing projects such as Ocotillo, consulting with faculty and staff at the colleges, editing our publications, and co-managing the MCLI while in search of new leadership. As a result, I have found that my technology skills have lapsed.

Besides time for hands-on development, another key aspect in harnessing technology is to explore the strategies from other groups with similar goals as ours. To some degree I can do this by visiting web sites, attending conferences, or corresponding by e-mail, but this yields surface level knowledge. The best way to understand the working relationships of people is to spend time in their environment.

This sabbatical is an opportunity for me to devote focussed time-- not only to sharpen my technical skills, but also to explore media design practices used in both education and business environments. Specifically, I will focus on:

**Deep & Rich Interactivity:** Many technologies billed as “interactive” are more “re-active” - just having choices to select from (typically a limited set), or “click & see / click & read.” I plan to participate in development of technology applications that provide simulations, experiential learning, and/or collaborative spaces, i.e. environments that tap into higher order thinking skills.

**Information Design:** Why are there more “bad” web sites than “good”? It has less to do with the technology and more with a lack of good content structuring, sequencing, design, and navigation. Basic tenets of design (e.g. The Design of Everyday Things, Donald Norman, 1990; Envisioning Information, Edward R. Tufte, 1997) seem not to be widely applied. I will develop a collection of relevant examples and guidelines, plus research new innovative approaches that may provide some new paradigms for information organization, such as 3-Dimensional interfaces.

**Making it “Do-able”:** Improvement in the first two areas will not help a large organization like Maricopa unless it is packaged in a manner that makes sense and meets the needs of so-called “mainstream” persons-- who perceive the value of technology but are reluctant to plunge in like innovators. In documenting my work on this sabbatical, these are my priority audiences.

I wish to explore some newer methods of creating deeply interactive learning experiences using technology. **My goals are to learn from different approaches of designing instructional technology and information organization, to search for ways to help our less-technical inclined faculty/staff to confidently and successfully deliver, apply, and use deeper, more meaningful uses of technology than just presentation mode.**

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This proposal includes a range of activities designed to enhance my skills and knowledge in application of technologies that I have not used or have had access to before. One facet of this sabbatical includes participation in a project at Northern Arizona University-- the development of virtual science labs, an opportunity to work with new technologies ("multi-user server"), web databases, and high-end software for creation of 3D environments.

The second facet my sabbatical is to visit educational organizations that are addressing needs of learning with technology in both classroom and remote environments. In addition, I will also visit commercial firms, large and small, that develop online multimedia content, to review their workflow strategies, and to gather insight into needs for future trends with technology.

Finally, during my sabbatical, I will document my progress via an online portfolio on my personal web site (<http://dommy.com/>).

## Goals

- (1) Increase range and depth of skills in next-generation interactive multimedia/Internet technologies.
- (2) Research strategies for design and organization of richly interactive content for learning.
- (3) Investigate strategies used in business and education for design, development, and creation of interactive content.

## Objectives

- (1) Participate as a team-member in the development of interactive educational applications, learning new techniques in 3D software and Internet multi-user technology.
- (2) Investigate concepts of graphic/information design and organization to online educational applications.
- (3) Identify models of project management and information design philosophies that would better enable Maricopa faculty use technology to create rich learning experiences.

## Activities

### **(1) CREATE: Center for Research and Evaluation of Advanced Technologies in Education (Northern Arizona University)**

<http://jan.ucc.nau.edu/~create-p/>

Contact: Mike Kelly, Director CREATE project

I have been invited to participate in this NSF funded project as part of a team designing and developing virtual chemistry laboratories using multi-user server technology. This is a product that would enable students to synchronously collaborate in interactive laboratory simulations via the Internet. In this project I will gain experience in working with a new technology as well as 3D software

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[Goal 1]. In addition, I will gain insight into their team development processes and how they work with multiple faculty members to meet instructional needs [Goals 2, 3].

## **(2) Visits to New Zealand and Australia**

In education, both of these countries have political and economic drivers to make education more “flexible” and “cost-effective” yet are working against traditions of teacher-led instruction. Public institutions there are expected to provide learning in multiple modes for diverse audiences, to develop new skills-based programs, and to deal with “competition” from without while trying to attract students from neighboring regions. Understanding how organizations there are addressing this via technology may provide insight to many of the same issues we face here in Arizona [Goal 3].

### UNITEC Institute of Technology (Auckland, New Zealand)

<http://www.unitec.ac.nz/>

Contact: *Richard Elliott, Head of Learning Technologies*

UNITEC Institute of Technology, a technological institution that provides education from certificate to degrees, has offered to host me for a few weeks to dialogue and interact with their groups involved with integrating technology.

### Native Design Limited (Auckland, New Zealand)

<http://www.native.co.nz/>

Contact: *Eli Weir, Managing Director*

Native Design, a commercial multimedia firm that both uses and provides training for multimedia software, offered me a visit and tour of their facility. Eli Weir has also invited me speak to the local multimedia user group.

### Dave Wood (Wellington, New Zealand)

Freelance Multimedia Developer

Dave Wood has offered to discuss multimedia development for commercial clients as well as introducing me to other training institutions in the area.

### Che Tamahori, SHIFT (Wellington, New Zealand)

<http://www.shift.co.nz/> & <http://www.sfx.co.nz/tamahori>

Che Tamahori has achieved recognition for his design of intuitive and unique navigation information designs for commercial clients. He has offered to host a visit to his firm as well as introducing me to local education technology developers.

### Canberra Institute of Technology, Canberra Australia

<http://www.cit.act.edu.au/>

Contacts: *John Smith, Director of Curriculum and Staff Development*

CIT is the largest provider vocational education and training in Canberra. Mr. Smith invited me visit CIT, after he visited Maricopa in 1998. Their organization is charged with making their offerings more “flexible” with technology. We have already had some contact during a November 4, 1999 exchange where a group of Maricopa faculty dialogued with CIT faculty via synchronous two way video.

**Riverina Institute of TAFE, New South Wales Australia**<http://www.rit.tafensw.edu.au/>**Contacts:** *Rosemary Campbell, Institute Director*

The TAFE Institutes are Australia's closest parallel to community colleges. The Riverina Institute of TAFE provides vocational, certification training, and university transfer programs to 26,000 students from 17 locations.

**Tom March, Ozline Pty Ltd, (Southern Highlands, Australia)**<http://www.ozline.com/>

Tom March is well-recognized for his work on educational projects such as WebQuests (<http://edweb.sdsu.edu/webquest/>) and the Pac-Bell sponsored Filamentality (<http://www.kn.pacbell.com/wired/fil>) sites. He has recently moved to Australia to establish a new "cottage" industry designing online educational technology tools and tutorials for teachers around the world.

**Queensland University of Technology, Academy of the Arts, (Brisbane, Australia)**<http://www.academy.qut.edu.au/>**Contact:** *Gavin Sade, Lecturer in Communication Design*

The Academy of the Arts offers degrees from Associate to PhD. The Communication Design program prepares students for careers in multimedia.

## Timeline

| <b>Date</b>                   | <b>Location</b>                                   | <b>Activity</b>   | <b>Goal</b> |
|-------------------------------|---|---|-------------|
| July 1 through late September | Flagstaff, Arizona<br>Northern Arizona University | CREATE Project<br>Multi-User server programming, 3D design<br>Participate in project management and review team development strategies. | 1<br>3      |
| Late September - Late October | Auckland, New Zealand                             | Visit UNITEC, conduct workshops, interact with instructional support teams, review issues of technology use. (3 weeks)                  | 1,3         |
|                               |   | Visit Native Design, local multimedia user group (1-2 days)   | 1,2,3       |
|                               | Wellington, New Zealand                           | Visit local multimedia developers, review design strategies (2-3 days)  | 1,2,3       |
| Late October to mid December  | Canberra, Australia                               | Visit Canberra Institute of Technology to review technologies used and design strategies (3-4 weeks)                                    | 1,3         |
|                               | Queensland University of Technology               | Visit School of Communication Design (1 week) to review methods of teching interactive design   | 1,2         |
|                               | Riverina Institute of TAFE                        | Visit TAFE in Sydney region (2 weeks) to review technology integration in distance learning   | 1,2         |
|                               | Ozline, Pty                                       | Visit Tom March (2 days)  | 2,3         |
| mid December to late December | Phoenix   | Complete NAU projects; summarize project on web site.   | 3           |

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Exact dates and order of visits in Australia / New Zealand will depend on travel arrangements and schedules at host institutions. All listed sites have provided letters of support (see below).

None of these sites are related to existing District projects, although a few faculty members have completed sabbaticals with Canberra Institute of Technology. While the District International Education office has faculty exchanges with the Riverina Institute of TAFE, we have not had collaborations between the units involved with technology integration from a systemic perspective.

The CREATE project at NAU is a new project that is not associated with the District. This project offers an opportunity to focus on technologies not used to date in any projects from MCLI.

## **Professional Growth**

The CREATE project at NAU will provide me with in-depth technical experience in using “multi-user” server technology. This technology allows us create a rich media environment (virtual laboratories) in which participants can collaborate synchronously. But more than the text interchange of “chat” technology, a multi-user server provides places in which one person may be measuring a chemical reactant, another is adjusting a virtual instrument, and a third is recording data. All aspects of the environment are shared in real time. In this aspect, I will be learning new programming techniques that could be applied in other projects at Maricopa. Also, working for the CREATE project will allow me to gain insight into a project development process that includes faculty, programmers, graphic artists, and instructional designers, valuable insight into the team process of technology development.

In the visits to institutions and individuals “down under” in Australia/New Zealand, I will have the opportunity to interact with a diverse range of persons in environments of differing goals. This will provide me more experience and skills of interpersonal communication and insight into management styles. I will also have an opportunity to improve my presentation skills as well. These are all areas that can make me more effective in a leadership role.

## **Increased Effectiveness**

The technical skills I gain from the CREATE project are ones that can be used on new projects within Maricopa, as we look for ways to improve learning in the lab sciences, where skills of data collection and evaluation are important. This may open up opportunities for other Maricopa faculty to use the software we create or participate in development in new subject areas. The project at NAU will also allow me to learn about their design of a technology-enabled teaching space, the physical design of a technology rich classroom/laboratory.

The visits to Australia and New Zealand will provide insights into the ways these institutions are not only using technology, but making it achievable for their faculty. The business perspective will help me to better articulate the needs of technology as a rapidly growing field. And these countries will help me better understand perspectives and issues of international learners, as well as the means in which these organizations meet the needs of their culturally diverse populations. These visits can also open up new opportunities for

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technology assisted collaborations between Maricopa faculty and colleagues overseas (we have already instituted a web discussion forum between Canberra Institute of Technology faculty and our own).

The design and information organization approaches I will learn will provide new strategies for consideration within our system. These can be documented and presented in a format that has proven effective for our existing web tutorials on web page creation and web searching strategies.

## Letters of Support

Subject: Sabbatical  
Resent-To: alan.levine@domail.maricopa.edu  
Date: Tue, 09 Nov 1999 18:48:47 -0700  
From: "M. Kelly" <Michael.Kelly@NAU.EDU>  
To: Alan Levine <levine@maricopa.edu>

This is a letter of support for your potential sabbatical with NAU's Center for Research and Evaluation for Advanced Technology in Education (CREATE). As Co-Directors of CREATE, Jay Tashiro and I are pleased that you would like to work with us for several months late next year. We see you making a strong contribution in several areas:

1) Research into faculty collaborations at key stages in development of "team built" multimedia curriculum. We envision that you will design new techniques and streamline current practices that CREATE implements during interactions with our faculty content experts. We anticipate that you will work with a varied group of NAU College of Arts and Sciences faculty as well as visiting faculty from some of our partner institutions. As part of this research we anticipate that you will lead in preparation of any publications that CREATE can disseminate based on your research.

2) We also see accessing your talents in software development. In particular we have several projects that will be in development during the time that you would be here. One is a special multi-user environmental chemistry course that will take advantage of NAU's new interactive biochemistry classroom in which students will share computers during normal lecture time. We anticipate enhancing student declarative, procedural, and strategic knowledge in our careful redesign of an existing Chemistry course. In our plan, students will be able to collaboratively solve large problems during class time. Each individual group will work on part of a much larger problem. As individual groups complete their work - their results will be displayed on large monitors from which the entire class can derive the answer for the overarching problem. One example might be the calibration curve for a particular chemical reaction. We hope to do this with html and Shockwave. With your abilities in Macromedia Director, html and Perl, we see you as an important player in the design and programming required for this cutting edge educational project. We have three chemistry professors dedicated to this project, but the programmatic challenges here are equal to the content design challenges.

CREATE will work closely with the University administration to try to help you with housing issues during you stay. We hope you decide to come to Flagstaff during part of your sabbatical.

Mike Kelly Co-Director  
Center for Research and Evaluation of Advanced Technologies in Education  
<http://jan.ucc.nau.edu/~create-p/>

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Flagstaff, AZ 86001-5701  
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Date: Fri, 29 Oct 1999 15:05:58 +1300  
From: relliott@unitec.ac.nz  
Subject: Re: Possible visit in June 2000  
To: levine@maricopa.edu  
Organization: UNITEC Institute of Technology

Hi Alan

Based on your stated goals, I am absolutely sure we can explore a visit to New Zealand by you which will be mutually beneficial. We would be delighted to have you here at UNITEC and some opportunities to visit other institutes within the Auckland region maybe a possibility.

Your offer to provide some presentations would be well received.

I would suggest that a couple of weeks with us would probably meet both our needs and maybe some visit to other institutes for another week or so.

I will pursue the issue of help with travel and accommodation and report back on my success or lack of!

Look forward to hearing from you with the next step.

Richard Elliott  
Head of Learning Technologies  
'Learning in the drivers seat, Technology turning the wheels!'  
UNITEC Institute of Technology  
Private Bag 92025  
Auckland  
New Zealand  
phone: 6498152929; Fax 6498154312  
UNITEC URL: <http://www.unitec.ac.nz>

Date: Fri, 05 Nov 1999 13:24:43 +1300  
From: Eli Weir <eli@native.co.nz>  
Subject: RE: Visit  
To: 'alan' <levine@maricopa.edu>  
Reply-to: eli@native.co.nz

Alan

Would love for you to come and spend some time (both with the business, and perhaps also a little bit of sight-seeing).

We are going to get Alex Zavatore over here next year for a conference (as I chair the MMUG for NZ), so seeing you in the same year as well would be brilliant and we would like to have you speak to our MMUG as well.

Eli Weir  
Managing Director  
eli@native.co.nz

Subject: Re: from az to nz  
Resent-To: alan.levine@domail.maricopa.edu  
Date: Tue, 09 Nov 1999 08:35:29 +1300  
From: Che Tamahori <che@shift.co.nz>  
To: alan Levine <levine@maricopa.edu>

Alan

I'd like very much to talk with you if you can get down to Wellington. I could probably introduce you to some people involved in design education locally.

Che

S H I F T

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che@shift.co.nz                          mob: +64 21.650.190  
<http://www.shift.co.nz>    <http://www.sfx.co.nz/tamahori>

Date: Mon, 08 Nov 1999 21:45:48 +1300  
From: Dave Wood <powerpix@xtra.co.nz>  
Subject: Re: OT (DU-OT): alan's world tour  
To: levine@maricopa.edu  
Organization: PowerPix

Hi Alan

I do freelance Lingo work here in Wellington, New Zealand and also a bit of teaching so I also know the local multi-media companies and also training institutions that teach Director.

I don't have contacts in Auckland, but if you want to visit Wellington, I can help put you in touch with some people.

Dave Wood

Date: Tue, 02 Nov 1999 11:31:18 +1000  
From: john.smith@cit.act.edu.au  
Subject: Re: Possibility for Sabbatical  
To: levine@maricopa.edu

Gooday again Alan,

just following up on the possibility of a sabbatical. I could certainly offer you a work space here at CIT and there is the possibility that I could employ you to deliver some workshops and tutorials in our Teacher Education program.

I'll see if I can firm something up - I'm exploring the possibility of a 'visiting fellow' position.

John Smith

Canberra Institute of Technology  
Curriculum and Staff Development

Date: Thu, 21 Oct 1999 20:24:43 +1000  
To: alan.levine@domail.maricopa.edu  
From: tom@ozline.com (Tom March)  
Subject: Re: AZ to Oz

Hi Alan,

I like your site. Looks like it would be very helpful to your staff and students.

Ozline Pty Ltd is actually me sitting in my home office trying to keep a few balls juggling in the air. You're welcome to visit and exchange ideas on educational technology.

Tom --

Date: Fri, 29 Oct 1999 14:41:18 +1000 (EST)  
From: Gavin Sade <g.sade@qut.edu.au>  
Subject: Re: question  
To: alan <levine@maricopa.edu>

Alan,

I would be happy to have you visit the Communication design department in Sept - November 2000. Our second semester runs from mid July through to mid November. If you visit close to the end of semester it should be an exciting time. The final year students will be busy working on projects for the gradute show(late November early dec). This cohort of students are the best intake we have had to date and I cannot wait to see the work they will be producing at the end of next year. So it should be a great time to visit, you will get to see Communication Design in 'full flight'.

We have an office for adjunct staff which you could camp out in for the time you are here. I had a quick look at the workshops that you have online. It would be great if you could run a tutorial for my second year class where you are here, the class covers interactive design and uses director. There is also the possibility of another couple of guest lectures in other units, this will depend on the actual dates for your visit.

At the moment we focus on direct personal approaches to teaching units. We support units with information published online, yet do not have any 'multimedia' strategy in place for the development/distribution etc of teaching material. Through this personal approach, and because of our physical limits on space, I have started to notice the potential for creating a real 'hothouse' environment.

Look forward to hearing from you

Gavin Sade  
Lecturer in Communication Design  
Academy of the Arts  
Queensland University of Technology  
Phone. 61 7 3864 5901  
Fax.61 7 3867 5569  
<http://www.academy.qut.edu.au/cdes/>

Date: Wed, 17 Nov 1999 19:46:55 +1100  
From: Campbell Rosemary <rosemary.campbell@tafensw.edu.au>  
To: 'alan' <levine@maricopa.edu>  
CC: Reid John <john.reid@tafensw.edu.au>,  
Stocker Joy <joy.stocker@tafensw.edu.au>,  
Stuchbery Graeme <graeme.stuchbery@tafensw.edu.au>

Dear Alan,

We would be very pleased to have you visit Riverina Institute as part of your sabbatical next year.

We would be particularly interested in exchanging ideas on use of on line pedagogy and would be keen to further explore using these environments in combination with mainstream instruction.

Your ideas from your message would be very relevant to us.

Travel between sites of our Institute is easily arranged - we have cars going between campuses all the time- it is just a matter of catching a lift.

Please let me know if you need anything more formal at this stage.

Rosemary Campbell  
Institute Director  
Riverina Institute of TAFE