

# **ViCoCITY – A Virtual Company Environment used in Distance Education to teach key professional skills.**

**Ms. Elaine Walsh**

(Oscail, Dublin City University)

**Mr. Seamus Fox**

(Oscail, Dublin City University)

**Mr. Alan Mullally**

(Trinity College Dublin)

**Mr. Eamon Costello**

(Oscail, Dublin City University)

Paper presented to AISHE Conference: Encouraging Student Engagement, National University Ireland Maynooth (August, 2008)

## **Introduction**

This paper will discuss the background and rationale for the introduction of ViCoCITY to the Bachelor of Science in Information Technology (BSc in IT) degree offered through distance education by Oscail, Dublin City University (DCU).

*“The ViCoCITY simulation centre ... takes the form of a ‘City’ of companies and institutions, each with their particular culture and identity. Each of these is populated by people, products, services, documents, systems etc”* (Mullally and Redmond, 2007:1).

There has been some research into the use of ViCoCITY in the traditional face-to-face educational setting but there has been little research into its use in distance education. This paper will evaluate the usage of ViCoCITY in a distance education programme and detail future research ideas and development plans for its use.

The paper will start by describing the structure of ViCoCITY and the potential variety of coursework that is available within its structure. It will examine the effort and input that is involved in creating coursework. It will also detail the existing media being used and various potential media in which could be incorporated.

It will then report on the evaluation of the experiences of students, tutors, assignment writers and administrators using ViCoCITY in a distance education setting. It will finish by examining the potential benefits of ViCoCITY to the various involved groups including potential benefits for traditional face-to-face students.

## **Background to Oscail**

For the past 25 years, Oscail has provided access to distance education to adult students throughout Ireland. Currently, Oscail offers undergraduate and postgraduate qualifications.

Oscail provide students with specially written self-instructional course text, containing self-assessment questions and sample answers, which is supported through face-to-face support. Since 2002, online tutorial support has been phased into all modules in its programmes.

Beginning in 2002, the BSc in IT has been converted into an online programme. Some elements of the original teaching method remain, for example, face-to-face tutorials take place in DCU and students are required to attend examinations.

The BSc in IT is designed at those aiming for positions in IT management, administration or enterprise. The programme contains four subject areas; Computing, Communications Technology, Management Science and Human Sciences.

All subject areas are presented at diploma and degree level. The diploma has two levels. Successful completion of a module at level one is required for progression to level two. Students must successfully complete all eight diploma level modules to be awarded a diploma. The degree level is a single level qualification, with each subject offering two modules (designated A and B). Students must successfully complete the four core modules and two of the remaining non-core modules to be awarded a degree.

Both of the modules relevant to this paper are degree level Management Science modules. Management Science A: *Business Information Systems (MSA)* aims to give an understanding of issues in the strategic application of Information Systems in modern enterprises. Management Science B: *Management of Information Systems (MSOIB)* aims to equip the student with an understanding of issues in the strategic management of Information Systems and in the management of the IT function in organisations.

### **Profile of the Oscail - BSc in IT Student**

Oscail students have a range of different backgrounds, with registered students ranging in age from 19 to 62 years. The average age of the BSc in IT student is in the mid-thirties. Most students are in full time employment and have chosen to study with Oscail as it is location-independent and provides the flexibility not available to fulltime students. Students are advised to study no more than two modules a year (i.e. approximately equivalent to half a year of fulltime study). A very small proportion of students are located abroad, with the majority of students located throughout Ireland.

### **A brief background to Simulation in Business Education**

Simulations have been defined as “*the products that result when one creates the appearance or effect of something else*” (Cruickshank, 1980).

There has been extensive use made of simulations in business education (Faria and Nulsen 1996). Simulations are extremely effective in recreating the real world and can provide students with a genuine experience without actually sending the students into the workplace (Wolfe & Roberts, cited in Doyle & Brown, 2000).

The goal of the use of simulations in business education can be put as follows: “*Ideally, the student should apply the theory to near ‘real-world’ problem situations*”

*and in this realistic context gain a sense of the ‘professional practice’ that they will experience later when in employment” (Mullally & Redmond, 2007).*

### **Background to ViCoCITY**

ViCoCITY was an initiative of Trinity College Dublin (Mullally and Redmond, 2006). Similar to the work in the Open University of the Netherlands (Westera, Sloep and Gerrissen, 2000) a pressing concern was felt for an educational tool to better mimic real world scenarios. It can be problematic and complex to develop simulations to mimic a realistic workplace. ViCoCITY attempts to address this issue by providing educators with a set of realistic web-based business simulations.

The main impetus for the development of ViCoCITY was to provide students with an arena to facilitate the practice of applying professional skills and for the development of higher-order learning (Springer and Borthick, 2004). Applied professional skills can be difficult to teach, in a realistic manner, in the existing academic environment. Employers have often voiced concern that student learning can be heavily theoretical and that students often lack the ability to apply their learning in a professional and practical manner or to transfer learned knowledge to real life situations (Barnett, 1994, cited in Westera, Sloep & Gerrissen, 2000). The educational environment can be an artificial one without connection to the work place. It was felt important to create an environment in which students could apply theory in a realistic manner and to practice the key skills valued by employers.

ViCoCITY is a web application that attempts to mimic real world scenarios. It comprises a set of websites with detailed information for a group of fictional companies.

Using ViCoCITY, as a tool for assessment, was first integrated to the BSc in IT in 2006/2007<sup>1</sup>. Following successful use in one module, ViCoCITY was incorporated into another module of the BSc in IT in 2007/2008.

### **Rationale for the introduction of ViCoCITY**

Prior to the introduction of ViCoCITY, students reported in evaluation surveys that they found it cumbersome and sometimes impossible to access the data required to successfully explore the topics assessed in the Management Science assessments. In a number of these, students were required to study real companies. However, frequently the required information was not in the public domain. In some assessments, students were asked to choose a company, of which they had knowledge, to apply their assessment questions but some students were not employed in or had access/experience of relevant companies while others could not access relevant information. ViCoCITY provided a solution and an even footing for all students in that it provided fictional but realistic information upon which students could base their assessments.

ViCoCITY provides basic information about a set of virtual companies. It also provides artefacts representing sensitive/confidential internal documentation for these virtual companies. It enables the creation of realistic company profiles; staff listings

---

<sup>1</sup> It has also been used in a number of programmes in Trinity College Dublin, for example in the MSc Management of Information Systems and BSc in Information Systems.

with biographical details of the core staff; links to associated companies and their websites; and mission statements. It also contains internal documentation of sensitive information such as financial reports; sales figures; consultancy reports; etc. It also includes press releases, job specifications, and miscellaneous internal memos. This information enables students to carry out assignments designed to develop key skills in the following areas:

- Operations Management
- Business Environment
- Accounting
- Legal
- Marketing
- Information Technology
- Governance

ViCoCITY would also enable student to practice skills in a risk-free environment without the fear of potentially costly implications from errors. The virtual environment can realistically recreate the real world, where a student can experiment in pursuing a number of different strategies.

### **Methodology**

Consideration was given to the way in which ViCoCITY would benefit the students of the BSc in IT, as little benefit would be gained by simply introducing ViCoCITY without proper thought to the impact on the students. It is not enough to simply introduce such learning experiences without reflecting on the rationale for introducing it (Gentry & McGinnis, 2007). Therefore, ViCoCITY had to be introduced in as seamless a way as possible.

Previous to the introduction of ViCoCITY, students were required to submit three assignments (as continuous assessment) and complete an end of year examination. Assignments were made available to students at least four weeks prior to the due date through a document entitled “Study Guide and Schedule” which outlined the assignment brief, due-date and deliverables. Attendance at tutorials was optional but highly recommended and tutorials were scheduled to correspond to study periods (assignment and examination periods). As a result, there was one tutorial assigned to each assignment (one, two and three) and one tutorial assigned to the examination. Tutorial support was also provided through the online learning environment – Moodle.

With the introduction of ViCoCITY, the schedule and structure of the academic year remained the same as previous years. For assessment purposes, students submitted three assignments and completed an examination. The assignments were made available to students at least four weeks prior to the submission date. However, assignment details and deliverables were provided through ViCoCITY. The website was password protected so the details previously within the Study Guide and Schedule were replaced with access information such as a username and password and a link to the ViCoCITY website. Assignments were submitted online through the virtual learning environment – Moodle.

As ViCoCITY is web-based it is extremely easy to access. There are no plug-ins or special software required beyond a standard web browser. This allows students to get to grips with ViCoCITY without encountering technical hurdles and potentially to access it from a wide range of web-enabled devices. This is significant when compared to full-blown 3-d virtual worlds such as Second Life which require significant bandwidth and computing resources; a proprietary plug-in; training and have issues when accessed from within firewalls. ViCoCITY has been used over the past two years with negligible reporting of difficulty accessing the website. No student reported any issue with ViCoCITY in the first year and only 2 students contacted the support service to indicate a problem accessing ViCoCITY. Both of these issues were firewall related.

### **Evaluation**

Shortly following the completion of the examinations students are requested to complete an online survey for the relevant modules. At the end of the 2008 examinations, 14 of the 52 MSB students (response rate of 29%) and 7 of the 35 MSA students (response rate of 20%) responded to the survey.

Students were reminded of the rationale for the introduction of assessment in ViCoCITY and asked to comment on this new assessment method. The following question was asked of the 2007/2008 MSA and MSB students:

*“The objective [of using ViCoCITY] was to simulate a more ‘real-life’ situation where you would have access to both internal and external information on the companies. Have you any comments on this form of assignment?”*

The following responses are from the 2007/2008 MSA students:

- “A very clever approach. It made you own the situation and seek out information and clues”.
- “The virtual company was a great idea. Yes I found the simulate real-life extremely [sic] helpful as not everyone would be privy to working in an organisation that they could relate to for an assignment. It gave you some a good ground work to work on.”
- “Yes - real world experience (or at least simulation) is more interesting [sic] and beneficial in the long run”.

The following are responses from the 2007/2008 MS00B students:

- “I thought it was a good assignment more practically based than other text based assignments I've had on other modules and for that reason I felt I learned more because there was a requirement for me to think for myself rather than regurgitate information for the course notes”.
- “I think by introducing some more real life situations would make assignments more interesting”.

The following are responses from the 2006/2007 MS00B students:

- “This assignment I found enjoyable as it simulated a real work experience in researching internal and external information to produce a report for the boss”.
- “I did think the virtual company was a good idea. This would also be useful for MSA [Management Science A – this is other degree level module on the IT programme to which use of ViCoCITY was extended in 2007/2008] – as they use companies for their scenarios”.
- “This was an interesting assignment. The format was clever and engaging. As someone who works in the industry I believe that this assignment had good parallels to some of the analytical skills needed in the real world”.

When asked “*Would you like this type of assignment used more widely both in MSB and other modules?*” student replied:

- “I found this type of assignment practical. Yes it should be used more in this and other modules”.

One student voiced concerns that this method of assessment may not be useful in other modules. This may be due to the nature of the subject matter, as both modules where this assessment technique was introduced, are of a discursive nature. A number of modules on the BSc in IT are mathematical or engineering focused and may not easily transfer to this form of assessment.

- “This was useful for this module but might be limited in other modules”.

Setting the assignments in ViCoCITY had no effect on the submission rates of assignments. In MSA, the submission rate of assignments was consistent across the three assignments. In MSB there was an increase of 3.33% from assignment one to assignment two and an exact decrease of 3.33% to assignment three.

### **Conclusion**

The response from students was mostly positive, with a focus on the realism of the tool. The majority of students expressed the opinion that they felt ViCoCITY made the assessment more interesting and that they could now see the theory being taught was applied in the real world.

In the long term, there is potential for the collaborative development of ViCoCITY, by the relevant parties within the universities and institutes of technology, culminating in a potentially rich resource.

An issue, which is important in distance education, is the method in which to distribute documentation to students. ViCoCITY provides a platform, which overcomes this issue. ViCoCITY has proven to be user-friendly for both students and administrators, with resources being easy to edit/update and so provides for the easy dissemination of information. The provision of clear assignment documentation (including due dates, word count, referencing guidelines, formatting, deliverables) for

distance education students is easily accomplished through the use of ViCoCITY. This may also benefit the traditional face-to-face student.

An advantage for all students is the flexibility provided by this assessment tool. ViCoCITY can be accessed from any location as long as there is Internet access.

ViCoCITY provides access to realistic yet fictional information and allows students the environment in which to practice skills in a risk free setting. Traditional face-to-face students could also benefit from this.

Assessment based in ViCoCITY can be designed to be applicable to online and face-to-face students. This would allow the lecturer/tutor the flexibility to combine assignments for one presentation rather than developing different methods of assessment for different methods of delivery.

### **Future Plans**

Potentially group work could be conducted using ViCoCITY. Students could collaborate on larger projects. However the issue of facilitating collaboration would need to be addressed. The Course Team<sup>2</sup> identified group work as an essential component to the degree programme. Since 2002, various online collaborative tasks were introduced to the programme with some encouraging and positive results (Fox & Walsh, 2006). Group projects could be used to develop skills such as project management or teamwork, which were identified by the Course Team, as crucial skills required of graduates. Currently, students use a mixture of online and offline methods for collaborative work on the BSc in IT course.

ViCoCITY could be improved and expanded relatively easily through the development of an audio/visual element. Specially recorded messages could be incorporated to provide students with a link to fake/sample voicemails. This could produce an extremely rich resource, which could capture such nuances as voice intonation and emotion. Similarly, video could be used in a similar fashion or to produce additional resources such as advertisements or press releases.

Ideally, ViCoCITY and the learning environment platform should be integrated. This would allow students to upload assignment documentation to the same environment in which the assignment was conducted. Also, it would remove the need for separate login details.

Time and energy need to be invested and new materials needs to be developed if ViCoCITY is to mature and reach its full potential. The assessments need to be innovative and well thought out and should vary from year to year to avoid predictability and plagiarism.

Application will be made for the resources to develop this tool in 2008/2009. However, there are no current plans to increase the number of assignments in ViCoCITY for the coming year. The development of additional companies and the expansion of current content could produce a valuable and reusable resource that may

---

<sup>2</sup> The Course Team is responsible for the academic direction of the programme and comprises academics from both universities and institutes of technology, public sector and industry professionals.

well support a vast range of assessment techniques. The expansion and development of ViCoCITY would enable it to function as a key provider of distance and blended learning solutions to the undergraduate and postgraduate programmes offered by Oscail, DCU with possible applications for the wider DCU community and beyond.

## References

Cruickshank, D.R. (1980) Classroom games and simulations *Theory into Practice* Vol 19, No 1, pp 75-80.

Doyle, D. & Brown, F. W. (2000) Using a Business Simulation to Teach Applied Skills – The Benefits and the Challenges of Using Student Teams from Multiple Countries *Journal of European Industrial Training* Vol 24, No 6, pp 330-336.

Faria, A. & Nulsen, R. (1996) Developments In Business Simulation & Experiential Exercises *Business Simulation Games: Current Usage Levels a Ten Year Update* Vol 23, pp 22-28.

Fox, S. & Walsh, E. (2007) Task Oriented Online Learning (TOOL) - Social Interaction in an Online Environment *Case Studies of Good Practice in the Assessment of Student Learning in Higher Education* Vol 1, Dublin, AISHE/HEA Publication.

Gentry, J. & McGinnis, L. (2007) Experiential Teaching May Lead to Experiential Learning *Developments in Simulation and Experiential Learning* Vol 34, pp1 – 3.

Mullally, A (2006) The ViCoCITY Simulation Centre: Getting more from your coursework assignments *Centre for Academic Practice and Student Learning* Trinity College Dublin.

Mullally, A. & Redmond, T. (2007) *An academic discipline: ViCoCity - a virtual city comprising company simulations for improving the teaching of professional disciplines*, Proceedings of Elsin XII - the Proceedings of the 12th Annual Conference of the European Learning Styles Information Network pp xx-yy, Edited by James A. Redmond, Carol Evans, Adrian Parkinson, Steve Rayner, Colm Moore, Steven Armstrong, Audrey Stenson, Martin Graff, Liv Margarete Lassen, Lena Bostrom, Elizabeth Peterson & Andrew Ashwin. Dept of Computer Science, Trinity College, Dublin, Ireland June 12th-14th 2007.

Mullally, A., Redmond, T. & Morgan, G. (2007) *ViCoCITY Workshop: A Practical Guide to its Features and Use*, Dublin.

Smith, M. K. (2001) David A. Kolb on experiential learning *The encyclopedia of informal education* <http://www.infed.org/biblio/b-explrn.htm> Last access 17th July 2008.

Springer, C. & Borthick, A. (2004) Business Simulation to Stage Critical Thinking in Introductory Accounting: Rationale, Design, and Implementation *Issues in Accounting* Vol 19, No 3, pp 277-303.



Westera, W., Sloep, P.B. & Gerrissen, J.F. (2000) The Design of the Virtual Company: Synergism of Learning and Working in a Networked Environment *Innovations in Education and Teaching International* Vol 37, No 1, pp 23-33.