



# Teaching & Learning Innovations

December 2011



*Institute of Technology  
Blanchardstown  
Institiúid Teicneolaíochta  
Baile Bhlainséir*

Learning-Styles Change  
 Stories Development  
 Entrepreneurship Education  
 Turn/In  
 Informatics  
 Support Nurture Online Learning  
 Interactive Community Learning  
 Feedback Design Horticuture  
 Flexible Learning Resource Help  
 Clinic Learning Quiz Energy Learning  
 Innovation  
 Business Collaborations  
 Enquiry Based Learning  
 Mobile Benefits  
 Bcommunication  
 Humanities Audio  
 Social new-technologies  
 Improvements  
 Adobe Connect  
 Universal Design  
 Multi-Cultural Teaching  
 Video

## Contents

1. ACKNOWLEDGEMENTS.....	4
2. FOREWORD .....	5
3. Introduction .....	7
4. Contributors .....	9
5. Staff Development in Teaching and Learning .....	10
6. Online Community Development .....	11
7. Delivery of an online MSc in Business Intelligence and Data Mining .....	13
8. Learning Styles .....	14
9. Online automated Business Maths practice and CA tool .....	15
10. Universal Design .....	17
11. Data Mining Videos and Resource Development .....	18
12. Creation of learning objects for a multi-cultural communication Continuous Assessment....	19
13. 'El teatro y el español' - (Learning Spanish through Drama) .....	21
14. Introduction of new technologies to enhance learning in the area of financial accounting to first year students .....	23
15. Development of a Moodle Course Content Filter using Meta Data .....	25
16. Creation of Learning Objects for a module in (Hard Landscape Construction) for 2 <sup>nd</sup> year Horticultural Students.....	27
17. Maths Help Sessions .....	29
18. Accounting Clinic.....	31
19. Using a multimedia weblog in the language classroom .....	33
20. Online interactive e-learning system for accounting students.....	35
21. Providing students with practical experience of personal training sessions using staff members.....	36
22. Implementation of Enquiry Based Learning .....	37
23. Media Stories Related to Operations Management.....	41
24. Creation of learning objects for Creative Skills Practice in Social Care .....	42
25. Retention survey.....	45
26. Using Moodle for Organising Information Management Course .....	46
27. Introduction of a hybrid model of EBL in Business Systems Analysis & Design.....	47
28. Entrepreneurship Education .....	48
29. Development of a Moodle VLE Plug-in to Support Simultaneous Visualisation of a Collection of Multi-Media Sign Language Objects.....	49
30. Integrated Tutorial Tool for RapidMiner 5.....	50
31. Interactive Visual Map Tool for Moodle.....	51
32. Design and Development of a Flexible Learning Model in Mechatronic Engineering.....	52

## ACKNOWLEDGEMENTS

The Institute would like to acknowledge the contributions and support from the following initiatives.



## FOREWORD



Welcome to our second Teaching and Learning publication a bumper edition full of innovative practices compiled by a group of enthusiastic and reflective practitioners. The challenges faced by the Higher Education sector have been well documented in the media and literature. Increasing student demand at a juncture in our history of diminishing resources. A cohort of learners that represent the increasing diversity of the Irish nation, and presenting to us the opportunity of devising approaches and frameworks that leverage our existing resource base to the optimal benefit of the learners.

The emergence of a reflective practice that provides the space to describe and discuss not just **what** we do but also **why** we do it, I believe signals the maturing of the educational technology field and a recognition that teaching and learning is a core function of the Higher Education sector. A sector that traditionally has prioritised research prowess as the main criteria for assessing the value and impact of Higher Education institutes. This changing perspective is also captured in the current proposal by the HEA to establish the National Academy of Teaching and Learning. A commitment that hopefully will ensure that such local and regional initiatives as described in this publication will continue to be supported and encouraged.

It is critically important that we continue to expand and encourage further investigations into the multi-faceted questions of how people learn. Each contribution in this volume reflects a unique perspective on this question and highlights how our profession as educators is a practice in its own right and not merely subservient to other domains. An endeavour of both the mind and the heart, a practice where we have the opportunity to engage with our learners at both an intellectual and an emotional level.

It is refreshing to read how our notion of the standard or "normal" student continues to be challenged. A voice that is often marginalised and in a more difficult economic climate can be too easily ignored. We design our programmes to suit our view of normality, how our learners should walk, talk, behave, organise, study, report and respond. All of this to occur off course at a time and manner that is fixed and immutable. But as educators we know that each individual is unique, each learner's engagement will be characterised by their personal set of abilities and qualities. This opportunity is the right of every Irish citizen and not a privilege to be bestowed only on those that have the social and cultural capital to negotiate their pathway through the system.

As I celebrate my thirtieth year in the higher education sector I still feel privileged to be part of a profession that at its core seeks to create these opportunities and to support environments where individuals can realise their true potential. There is no end game in education, no final product that can be gift wrapped and dispatched in a production line fashion. We are part of a dynamic lifelong engagement with our fellow human beings. Education has always provided the space and place to allow individuals to cope and respond to the dominant undercurrents of modern society characterised today by change and uncertainty. A transformative opportunity that should be available to all. Finally I would like to applaud the work of all of the contributors to this volume. It provides a rich and timely portrait of the complexities, energy, engagement and reflection that are the hallmark of our profession. Also to Daniel whose enthusiasm continues to ensure that there will always be opportunities for your voice to be captured and for your practice to be explored, many thanks.

Larry

Larry McNutt | Informatics and Engineering





## Introduction

What does innovation mean? While preparing to write the introduction for this publication, I decided to do a little research on what innovation means in modern Ireland. As I thumbed through several government publications on research and innovation, I came to an uncomfortable conclusion. In the eyes of many, innovation is closely linked to commerce, it is viewed as a means of improving our so called 'knowledge economy', of improving bottom line; it is to be viewed as a source of revenue and commercial opportunity and a driving force behind GDP. As a reader I was left somewhat cold by the repeating occurrences of phrases such as 'market leaders', 'venture capital', 'commercial opportunities' and the old reliable clichés of 'blue sky thinking' and 'outside the box'. There were but a few mentions of innovations in public services such as health or education and when innovations in these areas were discussed, they were often linked to bottom line. Not once in all of my reading, did I come across a mention of innovation as a means towards improving our society. So where does that leave us in terms of the innovations outlined in this publication? Should we judge them on their commercial impact, their return on investment or their impact on the institutes financial standing? Can I rate them in terms of their monetary return and quantify them order of profitability or perhaps their contribution to a reduction in unit costs?

Another question has niggled away at me over the past few weeks. Why do the people featured in this publication engage in innovative practice? At the time of writing this, Steve Jobs, ex CEO of Apple has passed away. Social media is awash with images and quotes but one quote in particular has stuck a cord:

*"Your work is going to fill a large part of your life, and the only way to be truly satisfied is to do what you believe is great work. And the only way to do great work is to love what you do."*

He made that remark as part of a speech to Stanford University graduates in 2005. The quote echoed as I read each of the submissions in this publication. As I read each one, I kept coming to the same conclusion; that the authors and people involved in these innovations are passionate about their roles as educators and the work that they do on a daily basis. That may be an uncomfortable conclusion for some, but all of the innovations described in these pages take time, effort, dedication and perseverance. They are examples of excellent innovations. In almost all cases they have increased the workload of staff who receive no tangible reward for their efforts, but are simply satisfied in the knowledge that their work has enriched the educational experiences of their students. These innovations aim to be of benefit to students. Perhaps that is our bottom line, our return on investment.

I believe that this publication contains some excellent work and I think you will find it to be an interesting read. Areas of innovation include online communities in social media, learning styles, universal design, retention, learning through drama, student support clinics and many more. It's impossible for one document to capture all of the innovation in teaching and learning that goes on within the institution. In fact I know of some staff who are carrying out great work and are simply too busy to write about it (you know who you are!).

I also think it's important to recognise all of the staff in the organisation who contribute to this work. Innovation on this scale cannot occur in an organisation that does not facilitate it. Many of these innovations rely on the work of IT support, administration, HR, marketing, library, estates, accounts and other functions within the Institute.

It is my hope that this publication in some ways provides a source of recognition for all of the hard work carried out by the staff of ITB.

Finally I will finish with another quote which I think has some relevance as Ireland move towards a more challenging economic and social environment and at the same time, we in ITB look towards the possibility of designation to a Technical University:

*"Too much of our work amounts to the drudgery of arranging means toward ends, mechanically placing the right foot in front of the left and the left in front of the right, moving down narrow corridors toward narrow goals. Play widens the halls. Work will always be with us, and many works are worthy. But the worthiest works of all often reflect an artful creativity that looks more like play than work."*

— James Ogilvy

I hope you enjoy the read.

Daniel McSweeney

Editor



## Contributors

The following people contributed to the creation of this report

- Adrienne Harding
- Ann Murphy
- Dr. Brian Nolan
- Chris Murphy
- Clodagh Lynch
- Colm McGuinness
- Cormac McMahon
- Cynthia O’Hea
- David Murphy
- Dawn Duffin
- Denise Lyons
- Emma Wade
- Eugene Eivers
- Fiona Malone
- Francis McGeough
- Geraldine Gray
- Ian Cudmore
- Joanie Cousins
- Kyle Goslin
- Linda McWeeney
- Dr. Lorraine Leeson (TCD)
- Margaret Kinsella
- Maria Kenneally
- Dr. Markus Hoffmann
- Dr. Mary Ann Kenny
- Dr. Matt Smith
- Mo Haplin (NLN Assessment Services)
- Dr. Mohamad Saleh
- Niamh O’Hora
- Rachel Dockrell
- Robert Hickey
- Sarah Cassidy (NLN Assessment Services)
- Sinead Curran
- Stephen Sheridan
- Suzanne McCarthy
- Tom Mulvey
- Andres Poveda (photography)

## Staff Development in Teaching and Learning

**Author:** Patricia Doherty – Head of Department of Business

The Department of Business recently organised delivery of the DIT's Postgraduate Certificate in Third Level Learning and Teaching and Assessment to ITB lecturers. Course delivery was split between the ITB and DIT's Learning Teaching and Technology Centre. The programmes aim is to provide lecturers with support in their teaching role and to contribute significantly to continuing professional development. The programme is designed to provide opportunities for reflection on teaching in order to improve practice. Participants were encouraged to think more deeply about learning and teaching issues and offered opportunities to try out innovative teaching strategies.

Topics covered included:

- Learning theories
- Constructivism
- Active Learning Methods
- Technology enhanced Learning
- Reflective Practice
- Micro Teaching
- Assessment and feedback
- PBL and Group Assessment

The micro teaching sessions were an opportunity for lecturers to present a sample "snapshot" of what/how they teach and to obtain feedback from colleagues about how it was received. It was a chance to try teaching strategies that lecturers may not use regularly and an opportunity to experiment with something new or to get feedback on a used technique to explore its effectiveness.

Fifteen Department of Business lecturers and five lecturers from other ITB academic departments completed the course. Feedback has been very positive with many lecturers already implementing techniques learned.

## Online Community Development

**Author:** Niamh O'Hora – Lecturer in Creative Digital Media

**Contributors:** Daniel Mc Sweeney, Sinead Curran, Clodagh Lynch, Emma Wade, Stephen Sheridan

Social Media channels have been gradually integrated in teaching and learning methodologies throughout the Creative Digital Media full time and part-time courses over the duration of the academic year with great effect; strengthening communications between staff and students, promoting knowledge exchange outside the classroom, showcasing the best examples of student work, and facilitating collaboration and connections between the course, industry contacts, digital media practitioners and prospective students.

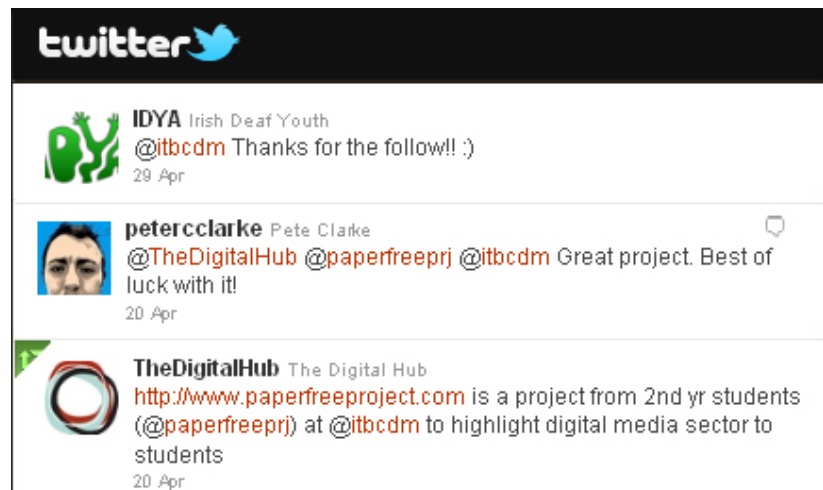
Free blogging technology has been tweaked to create a bespoke blogging website for the Creative Digital Media course. Over the past two academic years, the site has developed into a showcase of student projects and experiences, promoting best practice and public recognition for student work.

Links to individual student's blogs demonstrate the integration of online journals in continual assessment strategies across multiple modules, and form a community where students encourage and share with their peers. Prospective students gain an insight into the wide range of interesting continuous assessment projects. Industry stakeholders, local businesses and prospective employers are also exposed to the high calibre of graduates from the course, many of whom make direct enquires to staff based on initial online familiarity with the course.

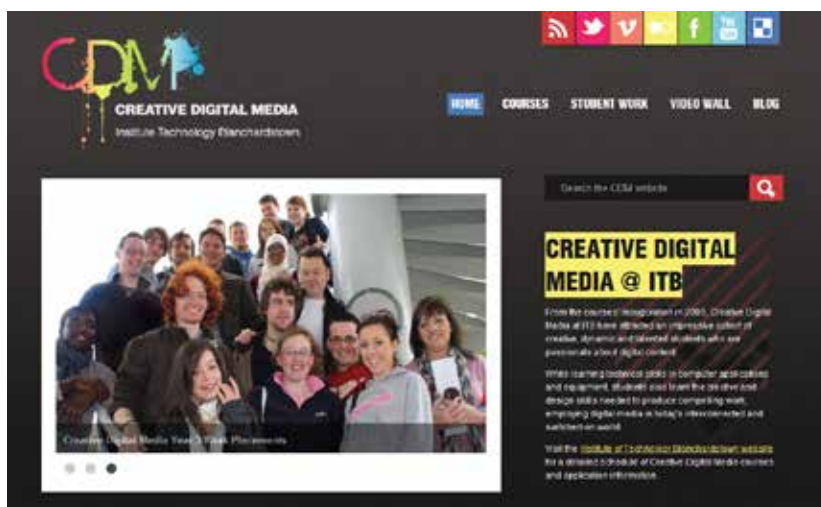
Multiple Social Networking Channels have been successfully, strengthening connections between staff, current and prospective students, industry contacts and local enterprise, professional bodies and prospective employers. Competitions, job opportunities, industry updates, technology news and articles are shared by staff and students on the Creative Digital Media Facebook Page and Twitter Channel. Student videos, animations and imagery are uploaded to YouTube, Vimeo and Flickr accounts, while relevant articles and bookmarks are shared with students on a Delicious page. Collaboration between students and external stakeholders has been directly initiated through online conversations. Recognition for the course has come from organisations including The Digital Hub and The Science Gallery.



Creative Digital Media Facebook Page, <http://www.facebook.com/createdigitalmedia.ie>



Creative Digital Media Twitter Channel, <http://twitter.com/itbcdm>



Creative Digital Media Blog, [www.creativedigitalmedia.ie](http://www.creativedigitalmedia.ie)

## Delivery of an online MSc in Business Intelligence and Data Mining

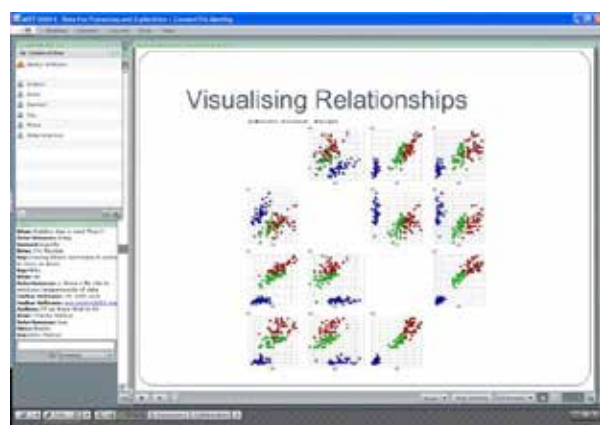
**Authors:** Geraldine Gray & Dr Markus Hoffmann – lecturers in informatics

This was ITB's first offering of a course run entirely online, delivered to students both resident in Ireland and abroad. There are twelve students on the course, five from Dublin 15, four from the greater Dublin area, two from other parts of Ireland (Galway & Wexford), and one from the UK.

Weekly lectures are delivered online via Adobe Connect, and recordings are made available immediately after each lecture. Notwithstanding this easy access to lecture recordings, attendance at the online classes was consistently very high, averaging at 95% (based on attendance data from semester 2).

Moodle logs covering activity in April 2011 showed lecture recordings were viewed a total of 68 times in that month. Most students listen to a recording just once. Two students repeatedly referred back to lecture recordings indicating their preference for video/oral format rather than written text. Recordings could not be downloaded. There was a similar number of accesses (63) to written resources over the same time period. This comprised of seven students accessing a variety of written resources once or twice, indicating their preference for written material rather than lecture recordings to follow up on class content.

Students were surveyed at the end of semester 1 to get feedback on their experience of ITB's online environment. Nine students responded to the survey. All students found the environment very easy to use, and valued the time saved on travelling to/from college to attend class. All students were happy with the sound and image quality, one student had a problem with latency and two students experienced problems with sound quality in the first few weeks when contributing orally themselves. Regarding the suite of tools available when using Adobe Connect, students reported that access to recordings was the most beneficial. Availability of a chat box and voice (by participants) came joint second, followed by use of breakout rooms, overlay facility to markup lecture notes, and use of class polls. Students found it easy to ask questions during class, but missed the level of interaction with classmates that comes with classroom based teaching. Feedback was very positive on the use of 100% CA to enable learning.





## Learning Styles

**Author:** Geraldine Gray – Lecturer in Informatics

**Contributors:** Dawn Duffin, Suzanne McCarthy, Mo Haplin and Sarah Cassidy - NLN Assessment Services, Cynthia O’Hea, Student Services Officer, ITB

Thanks to ITB’s ongoing collaboration with the NLN Assessment Services, profiling was offered to all 1<sup>st</sup> year students again this year during September and October of 2010 following the development of a project web site ([www.howilearn.ie](http://www.howilearn.ie)) incorporating the Do-IT Profiler along with our online Learning Styles questionnaire .

The Do-IT profiler helps to identify a person’s strengths and weaknesses in relation to cognitive processing in areas such as attention and concentration, memory, and language and communication. The students at ITB receive instant individual feedback including study tips and functional strategies to overcome any difficulties identified. The Profiling tool also serves as an indicator for students who may require further assessment in relation to areas of difficulty.

The online Learning Styles questionnaire offers students information on how they best process information (i.e through the visual, auditory, or kinesthetic channel) and on how other factors may aid learning (e.g., the time of day, background noise etc).

Staff can view learning style profiles for class groups via the website’s admin tool.

NLN also published a Study Skills manual in 2010, an excellent publication available to ITB students with tips and strategies for improving memory, concentration, motivation, time management, active learning techniques and much more.

Recordings of workshops on inclusive teaching approaches are available on moodle under SIF:Learning Styles. Topics include: Cognitive Processing & the importance of the first lecture, Specific Learning Difficulties, Learning Styles, Mindmaps and other visual techniques, Active Learning, Assistive Technology, Effective use of colour, Disability awareness.

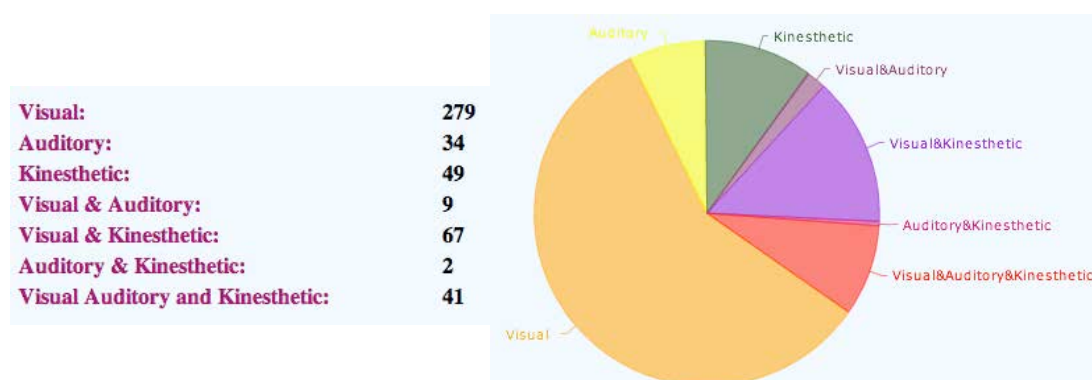


Figure 1: 1st year learning channels, 2010/11

## Online automated Business Maths practice and CA tool

**Author:** Colm McGuinness – Lecturer in Mathematics

Students are provided with dynamically created questions relating to subject content. Each student gets different question details. They answer questions in their own time, and at their own pace. It is possible to cancel a created question, and come back later to have another go; albeit with different question details. This allows students the possibility to realise that they need to study a topic before submitting their answers, if they have doubts. Questions are timed, so they are under some time pressure per question, and can't keep cancelling attempts indefinitely!

They also have access to a practice/unmarked version of the questions, so that they can practice as much as they want, before attempting the marked and timed version of questions. The practice versions are available (to anyone) at:

**Semester 1:** <http://www.colmmcguinness.com/live/S1/onlineMathsCA1.html>

**Semester 2:** <http://www.colmmcguinness.com/live/OL/onlineMathsCA1.html>

All marking is automatic, and is reported to students immediately upon submission of their answers. The immediate feedback allows students to then study topics where they have not achieved full marks, before proceeding with more questions.

All question details are logged along with answers for checking by an extern, if required. Various security features ensure that there is little chance of substantial cheating. Access to the exam questions is strictly via the student's ITB login. Students are encouraged to work together to help each other, and check each other's workings, as this all helps with subject engagement and learning.

The tool is a highly regarded by students who can appreciate how it encourages them to study material that they might not otherwise study until just before the final exams. It remains to be seen if this will affect the final exam results.

Further enhancements, such as extra questions, covering more of the module details, are planned for 2011-12.

Where necessary using the following values:  
 $x_1 = 5.7, x_2 = 3.2, x_3 = 6.5$   
 $y_1 = 3.7, y_2 = 3.4, y_3 = 4.1$   
Calculate:

$$\sum x y^3$$

Enter your final answer:  Submit this answer for checking Help Time Left: --:--

[Return to Main Menu](#) [Don't give warnings; Submit answers regardless of any errors](#)

Student ID: <Demo mode> Marks for this question: 1.5 Marks awarded so far: <NA> Qs done: 0 out of 37



## Universal Design

**Author:** Margaret Kinsella – Lecturer in Informatics & Creative Digital Media

**Contributors:** Ian Cudmore – Lecturer in Creative Digital Media

This project centres on the development of a series of lectures and workshops designed to provide learners with the knowledge required to design and deliver products and services that are cognisant of universal principles of access, usability and inclusivity.

The recordings range from:

- Assistive Technologies and Web Accessibility in conjunction with the National Council for the Blind
- Introducing Universal Design and the Seven Principles workshop in partnership with DIT, Kevin Street Universal Design Research Group
- A conference on Universal Design on the Urban Scale with Trinity College
- A conference on Universal Design organised by the Centre for Excellence in Universal Design (CEUD) incorporating a wide range of keynote speakers and participant workshops.
- A highly informative workshop introducing visual impairment and speech synthesis (JAWS). This workshop featured access to technology for personal and professional use and included an overview of braille.

### Creation of Learning Resources/Assets

Last year this Universal Design research project developed a range of prototype innovative learning resources, illustrating the Seven Principles of Universal Design.

This component was extended this year with a variety of projects. Most significantly was a Flash animation project capturing the daily living design issues that affect people with arthritis. A shadowing approach was very effective to capture the day to day living aspects, such as shopping, withdrawing money from ATM machines etc. An interview was recorded which reflected on the observations and allowed extra input and clarification. The critical moments were extracted and developed as an animation.

A prototype board game was developed to enhance awareness of the 7 principles of Universal Design. This increases the awareness of the significance of positive and negative design on a variety of users.

### Further collaborations

Further linkages were developed with Enable Ireland where two workshops were delivered. A wide variety of Assistive Technology and Smart Technology were introduced and demonstrated. The emphasis on Mobile Phone Technology featured highly as an enabler to Universal Design.

## Data Mining Videos and Resource Development

**Author:** Dr. Markus Hofmann

**Contributors:** Geraldine Gray, Lecturer

Following a successful request for funding to the NDLR Community of Practice (CoP) Fund in June 2009, ITB has currently developed a suit of 25 learning objects to support the delivery of data mining related modules at levels 7, 8 and 9. This was a collaborative venture with the open-source, data mining specialists Rapid-I and its Co-Founder, Ralf Klinkenberg.

After the successful development of the 25 learning objects a website was developed to make these learning objects publicly available ([www.rapidminerresources.com](http://www.rapidminerresources.com)). Parallel to this all videos were uploaded to YouTube. YouTube alone resulted in almost 15,000 views of these educational videos.

The website has attracted, in the last 12 months alone, almost 100,000 visitors from over 110 different countries accessing almost 500,000 pages. The branding of the website made it possible to 'recruit' students directly to our MSc in Business Intelligence and Data Mining.





# Creation of learning objects for a multi-cultural communication

## Continuous Assessment

**Author:** Joanie Cousins - Lecturer in Applied Social Studies Social Care

**Contributors:** Denise Lyons, Lecturer in Applied Social Studies Social Care

In September of 2010, I was given the task of setting the continuous assessment for the module 'Communication Structures' for 2nd year students on the Social and Community Development Degree Programme. One of the areas that I am very interested in is the representation of the many cultures within our student population at ITB and the wealth of those cultures. As part of the module on communication, I decided to develop a continuous assessment on 'Communicating our multi-culturalism in ITB'

The students were asked to represent and communicate their various cultures in a creative but non-verbal way to the students and staff within ITB. The completion of this project would culminate with a multi-cultural parade that would go around the campus on the opening day of Humanities week. Over the period of the first semester, the students used their tutorial time to create their work. Having being split into random groups that represented different cultures, the students began their creations. Amongst the creations were: A huge Chinese dragon, covered with pictures of people and flags from world cultures; a life sized three headed marionette representing three different cultures; a three dimensional globe of the world with flags attached for each country; a small multi-cultural puppet; a life sized tree which said 'we all come from different roots' and various colourful masks representing the student cultures.

At the end of the module, I linked in with Denise Lyons who at the time was lecturing a creativity module using music. We decided that the multi-cultural parade would be accompanied by live world music that her students were learning and practicing. The overall experience taught us all so much about our cultures, was great fun and the parade was enjoyed by all at ITB on the day.

The outcome of this project was a colourful parade which communicated our multi-culturalism in ITB.

### Student experiences

- The students thoroughly enjoyed this experience, learned about other cultures and for some, showed their creative talents they did not know they had!
- It was a novel way to carry out a continuous assessment. The students were delighted that they were getting marked for a project they fully enjoyed and learned so much from.
- The Blanchardstown Gazette were on site and photographed the parade and published it in their newspaper.



## 'El teatro y el español' - (Learning Spanish through Drama)

**Author:** Maria Kenneally – Lecturer in Humanities

**Contributors:** Adrienne Harding & Rachel Dockrell – Marketing (ITB)

It took place and continues to take place in the creative skills room of the Institute of Technology Blanchardstown. This room is equipped with desks, chairs, IT facilities, drama props, costumes, arts and crafts, musical instruments, and a music system. The room is bright and airy, and its layout allows for movement, dance, drama games, and improvisation.

The project arose from my personal interest in both Spanish and drama, and a recent piece of study that I carried out in TCD into the role of drama in language learning.

Dormant account funding became available within ITB in May 2009, and lecturers were invited to submit proposals for various projects of interest to primary school students. I was successful in my submission and my project was accepted as part of the 'Dormant Account Rainbow Projects'. These projects were showcased at a ceremony in ITB in March 2011 which Mary McAleese, president of Ireland, attended.

ITB has strong links with the Blanchardstown Area Partnership and with four local DEIS primary schools. The students from these schools have visited ITB in the past to participate in Maths, Robotics, language lab visits etc. I felt that I would like to extend the language learning experience for young primary students from a classroom or lab setting to a more hands-on and movement-based experience. This would allow the educational process to be truly 'lived-through' by students.

PowerPoint and realia was used to input language initially while drama games and exercises consolidated language after. The fun and experiential approach of this teaching proved very successful with participants who threw themselves fully into the language learning process. Students practised language individually, in pairs, and in groups, and were encouraged to use all language skills (listening, speaking, reading and writing). Instruments and dance from Spain and the Spanish speaking world allowed students to improvise movement and rhythm in more student-led activities. Target language usage and praise were key components of these workshops. In addition, great emphasis was put on process and product. Throughout the eight week process of learning students acquired language, put in into practise, more finely tuned their language skills, grew in confidence, explored space, and formed new friendships. The product of that learning was an end of course performance where costume, staging, song, dance, and the presence of an audience were sources of great excitement.

### Usage

This project can be easily adapted in other educational settings and with other languages. It is hoped that a teacher training day in May will provide Dublin 15 primary teachers with the ideas and incentive to introduce this programme (Learning Languages through Drama) into their primary schools and to apply it to a variety of languages (Spanish, French, German, Irish and even English as a Second Language). There is minimal use of resources as the main ingredient is the teacher's understanding of language learning methodologies, his/her creativity, ability to improvise and interest in cultural

awareness. As mentioned before this project can be easily adopted in other primary schools, secondary schools and third level institutes where languages are taught. Similarly it can be adapted in educational or community settings where English as a Second Language (ESOL) is offered.

### Student feedback

Once weekly classes allowed for regular reviewing of project planning and progress. There was anecdotal feedback from students each week: 'I really loved that class. I can't wait for next week.' End of course student questionnaires were invaluable regarding what worked well and what could be improved upon.

### Staff feedback

Staff feedback forms provided comments on student levels of enjoyment while participating in this project. The teachers whose schools have participated in this project have seen increased confidence, greater understanding of difference, sounder knowledge of world geography, greater appreciation of the importance of speaking another language, and more evidence of creative thinking in their students.





## Introduction of new technologies to enhance learning in the area of financial accounting to first year students

**Author:** Linda McWeeney - Lecturer in Accounting and Finance

The initiative seeks to reinforce key accounting issues in a fresh new manner that students will use and remember i.e. through the use of video voice tutorials, quizzes etc.

Camtasia Studio was used to record screen casts and capture voice actions. ITB has a product called a "Think-Pad" which has the ability to write on the touch screen. The Think –Pad laptop allowed tutorials to be produced through Camtasia Studio. The accounting questions can be written and voice narrations recorded. This technology allows the lecturer to record solutions to accounting questions while speaking through them. It is effectively, similar to an accounting tutorial, without actually seeing the lecturer. This technology allows you to record screen casts and also add features such as music and flash note add ins which they may see when looking at videos in YouTube. The library of video material is uploaded to moodle. The videos are then accessible for the students anytime. They can pause, rewind, repeat points they may not have understood in lectures, at their own pace.

Quizzes were also used to enhance learning. "Who wants to be a millionaire" was a fun method of learning for the student. This was used for a couple of tutorials. Students enjoyed the fun and relaxed atmosphere. The Buzz Game for the PlayStation has proved very popular with students. The Buzz Game is another fun quiz style product with the same concept as creating a PowerPoint Presentation that allows a lecturer to create their own personal quizzes for any subject matter. It creates an entertainment value, while being educational.

The possibility of using Apple iPod or iPhone was examined. Making an application available to download notes and then listen to these notes in cars, buses etc. were examined. Unfortunately, this device does not suit a practical subject like accounting but would suit theory based subjects.

Student feedback was very positive. They welcomed the flexibility provided and found the videos very helpful. Most of their queries with regard to questions were answered in the video tutorials when they played them back, at their own pace, at a time that suited them. Quizzes were welcomed as a relaxed, fun way to learn.



Attendance was not affected. Students believed it was still of utmost importance to attend classes. The videos did not replace lectures. They were just seen as an added bonus. Students still have the necessity to be part of a class and visual contact with lecturers is still important to them.

Some problems were encountered:

- Identification of entertainment technologies that are suited to the study of accounting
- Acquiring equipment to implement innovative ideas
- Obtaining finances for purchasing equipment
- Getting students to access the technology while teaching in class. Some students did not access it until Continuous Assessments or end of year exams were imminent.

Overall, it was an interesting project which requires on-going work, should further funding become available

Exam 2009\_Q3

2009 Question3

Vehicles Cost Account			
Bal b/d	250,000	Disposal	20,000
Bank	25,000	Bal c/d	255,000
	<u>275,000</u>		<u>275,000</u>
Bal b/d	255,000		

Vehicles Accumulated Depreciation			
Disposal	8,000	Bal b/d	100,000
Bal c/d	142,000	Depreciation	50,000
	<u>150,000</u>		<u>150,000</u>
		Bal b/d	142,000

Vehicles Disposals Account

ITB LINDA MCSWEENEY



# Development of a Moodle Course Content Filter using Meta Data

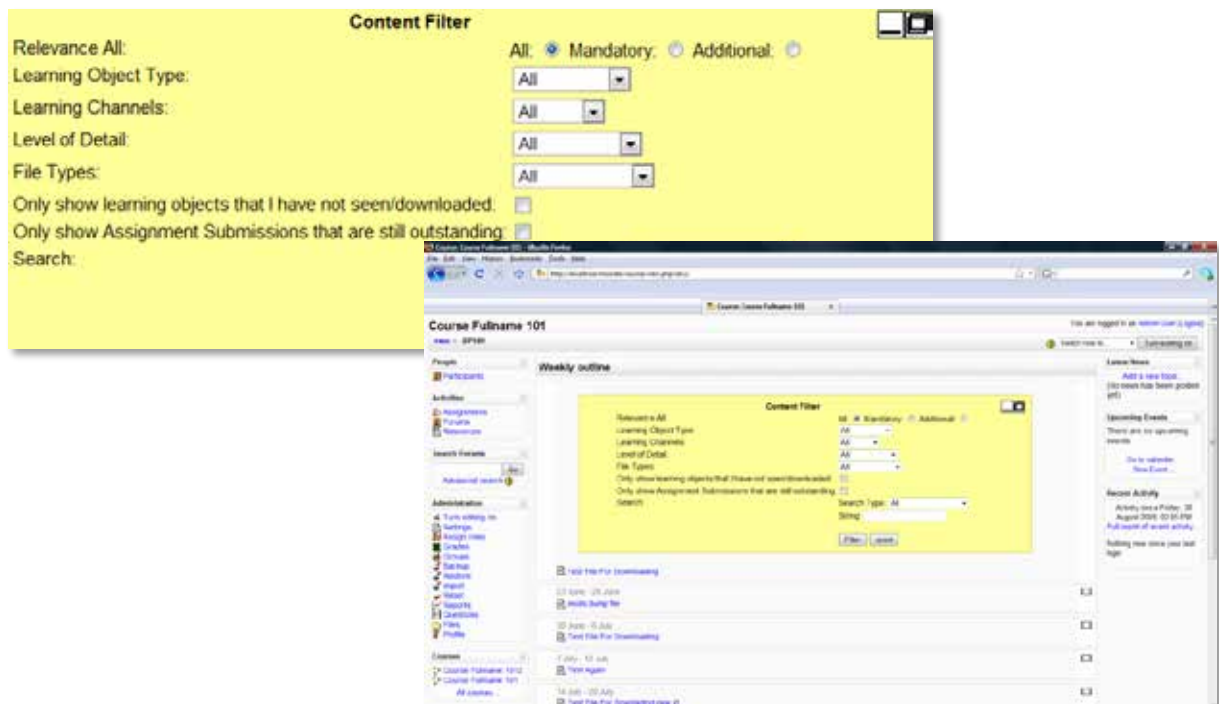
**Author:** Dr. Markus Hofmann – Lecturer in Informatics

**Contributors:** Kyle Goslin (Researcher), Geraldine Gray - Lecturer in Informatics

This project focused on the development of a Moodle course page content filter created in PHP which can be applied to a Moodle page to filter the course's learning objects, displaying only those documents matching the filter selections.

The course content filter has been developed as a code patch to be installed to the Moodle installation and activated by the Moodle administrator. It comprises of additional settings to both the Moodle course page and the learning object upload pages. Filter controls appear at the top of the student's course page allowing a student to actively filter the course page content.

The course content filter assists students in navigating to the learning objects relevant to their needs. For example it is possible to filter course content by learning channel, relevance, learning object type, level of detail, file type and other feature driven parameters. Providing a student with course material in a form relevant to their learning style makes course content more accessible, optimising the learning experience. For example, a student with a preference for their visual learning channel will benefit from course material presented in a visual form. The content filter described here will allow them to quickly access content which is optimised for their learning preferences.





# Creation of Learning Objects for a module in (Hard Landscape Construction) for 2<sup>nd</sup> year Horticultural Students.

**Author:** Robert Hickey - Lecturer in Brick and Stone laying

As with most subjects being taught at third level, since the introduction of modularisation the time available for teaching and learning seem very limited. To address this issue it was decided to prerecord some lectures for a module in Hard Landscape Construction. This was to try and make best use of the time available in the lecture but also to act as a focused way for the students to revise the learning material afterwards.

The resources consisted of animated audio PowerPoint presentations which were created using Macromedia Breeze (which is available to all academic staff in ITB). Included in the presentations were notes, animated diagrams and hyperlinks to a number of YouTube videos which were filmed in the Horticultural workshop in 2010. There were thirteen presentations created for this study which cover more than half of the learning outcomes for the module. The presentations varied in length from between five to ten minutes and included a worksheet which the students had to fill out either while viewing the presentation or afterwards.

## How the presentations are being used

In the lecture the students are given out a worksheet which they read through. The worksheet is directly aligned to the learning outcomes for the lesson which the presentation is based upon. The students are then shown the pre-recorded presentation in the lecture. After viewing the lesson in the class there is a question and answer session where the lecturer can clarify any outstanding issues for the students and the lesson material can be discussed. Following on from this each student fills out their worksheet but with the aid of their fellow students, so there is also an opportunity for peer learning to take place.

For the purpose of revision the students can access and view the presentations again via the module moodle course. They can pause the presentations while viewing them in order to fill out the worksheets which would facilitate them achieving the learning outcomes for each lesson. The students can also hand up their worksheets in order to receive feedback. The presentations vary in length from 5-10 minutes. An example of a pre-recorded lesson is available at the following URL <http://breezeapps.itb.ie:8008/paving8>.

## Experience so far

Through observation and based on the results from a survey questionnaire with 18 students it would appear that:

This is an excellent way to break up a lecture as it allows the students to interact with the learning material in a variety of ways. The information and material in each presentation is concise and to the point with animated visual aids as well as audio descriptions and explanations. Every ten minutes the students are given an opportunity to discuss the material with their lecturer and fellow



students. They also have time to consolidate their learning and understanding of the lesson material through filling out the worksheets which help focus the students on the learning outcomes of the lesson. The rich visual materials and practical video demonstrations add variety to the lecture and seem to help keep the students focused.

The students also have an opportunity to experience the lecture again through accessing and viewing the audio animated presentations via the links on moodle.

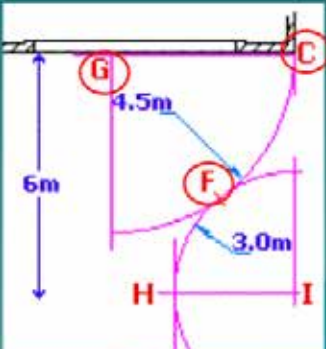
Results from the survey questionnaire showed that:

All of the students viewed the presentations again after the lecture had finished. Over 50% viewed them twice with 15% viewing them more than twice. They all liked the use of the pre-recorded lessons in the classroom including being able to view the lessons after the class had finished and being able to view them again and again. They all said they would like other topics in this module delivered in a similar fashion, and pre-recorded lessons used in the other modules in there course. All of the students said that using the pre-recorded lecture material was an effective way of achieving the learning outcomes for the module, and that being able to view the lessons more than once helped to reinforce their learning. 50% of the students even said that they preferred the pre-recorded lessons over the live lessons.

This has been a very successful study and I plan to develop more of these lessons for this particular module over the coming year.

## Setting out arcs and curves

- ♦ Arcs and curves are much simpler to set out.
- ♦ Any arc has 3 important points, namely the start tangent point, the end tangent point and the origin.



8. Setting out Arcs and Curves  
Robert Hickey  
Lecturer

Outline	Thumb	Notes	Search
Slide Title			Duration
Slide 1			00:21
Learning Outcomes			00:17
Setting out arcs and c...			00:39
Setting out arcs and c...			00:43
Setting out arcs and c...			00:22
Setting out arcs and c...			00:31
Setting out arcs and c...			00:40
Setting out arcs and c...			00:25
Setting out Lines and ...			00:41
Conclusion			00:27

4 Minutes 6 Seconds Remaining

Slide 3 / 10 | Stopped 00:22 / 00:39

## Maths Help Sessions

**Author:** Chris Murphy - Lecturer in Engineering

This initiative was open to all students in the Department of Engineering. Six hours of maths help sessions were available each week, from February 21st to May 11th. A session had to be booked by email, and once a session was booked a student was guaranteed a minimum of thirty minutes, or a maximum of two hours, depending on availability. A maximum of three students were allowed per session, in order to maintain a direct focus. When booking a session, students were asked to identify the specific area of mathematics they were having trouble with, and to have questions prepared. This initiative aimed to provide an informal atmosphere, where students could learn at their own pace.

The aims of the Maths Help Sessions were:

- To identify specific areas of difficulty for each student, and identify what learning methods most suited the student. For example, when covering questions on trigonometry and graphing, some students preferred to write on paper, some preferred to use a white board. When working through questions the tutor acts as a guide, eliciting answers from the student as questions progress. The majority of the students who attended the help sessions were highly motivated, and enjoyed working through questions interactively, as opposed to seeing a question worked through from start to finish.
- There were three group sessions in total. These sessions involved clarifying the students understanding of specific course content, as opposed to the one-on-one sessions where students had little understanding of their problem area. It was found that group sessions typically lasted 20-30 minutes. The majority of help sessions were one-on-one sessions with first year students who had difficulty with areas such as Boolean Algebra, Vectors, Phasors and Trigonometry. These sessions typically lasted one hour.
- To let the student control exactly what they gained from the help sessions. Any work carried out in a session was done so at a pace dictated by the student. Also, any work carried out was selected by the student. This helped to ensure that the student had put some previous effort into what they wanted to achieve from the help sessions. Having a booking process instead of an open session seemed to ensure a certain level of thought had gone into what the student wanted to achieve beforehand. Students who clearly identified their problem areas seemed to show the greatest improvements.



## Attendance

Attendance was poor at the start, but towards the end of the semester sessions were booked out.

## Outcomes

Students seemed to enjoy the informal experience. This might be down to the fact that the majority of sessions were one-on-one. Also, because the students were allowed to dictate what material was covered, and how fast it was covered, they seemed to feel more at ease. It was outlined before these sessions that it was paramount students do not feel judged.

## Student experiences

The majority of the students who attended the sessions seemed to work hard, and really achieve what they set out to do. Once the student felt comfortable with a subject they were asked to answer questions without any notes or books. This helped to ensure they knew the material, whilst motivating the student.

## Accounting Clinic

**Author:** Fiona Malone - Senior Lecturer in Business

The purpose of this initiative is to investigate the need for assistive learning and the impact of assistance on a “one to one” basis in an informal atmosphere. The clinic operates as a “drop in” centre providing free extra informal support delivered by a student research assistant (clinic tutor) to students having difficulties in some areas of accounting.

The accounting clinic caters all undergraduate ITB students taking accounting modules as part of their certificate / degree programme.

### Experiences

Students generally find the clinic extremely helpful, particularly due to the following reasons:

- One-on-one sessions allow students to raise questions which they are not able to ask in the lecture. It also allows them to focus more on the topic-at-hand as they are given more attention.
- Not enough time for lectures and tutorials to tackle all their queries certain topics. They turn to the clinic for answers, and to help them understand accounting better.
- Some students are not keen on approaching their lecturers if they are experiencing any difficulties with the module, they would rather approach someone they consider as their peer to seek assistance.
- Students are more comfortable talking to someone around their age – one barrier to communication which the clinic attempts to eliminate. They also feel at ease knowing that it is an informal session, formal status does not apply (lecturer – student)
- The clinic also attempts to address students’ individual needs in terms of learning styles, some students are more comfortable learning through examples, others from working through exercises themselves with minimum assistance, etc.
- Only a small number of students may be admitted in the clinic at any given time, therefore less crowded and less unnecessary noise; this permits students to focus more on their studies – less distractions
- Student can learn at their own pace, without having to worry about missing something vital being discussed while they jot down their notes.

### Outcomes

- Students gained better understanding of their respective area(s) of accounting (i.e. foundation, financial management, management accounting)
- Students feel more confident in tackling accounting question
- Better appreciation of why accounting has to be included as part of their course.

## Staff Feedback


- Years 1-3 of all courses doing Accounting modules availed of the facility.
- Students were able to get a one-to-one consultation from a past student who they perceived to have a good understanding of Accounting. ( Researcher had received the best student of year award in the College).


## URL's


- Moodle course: Accounting Help
  - <http://moodle.itb.ie/course/view.php?id=830>


### Semester 2


**Manufacturing Accounts**

 [May 2010 Exam Paper](#)


 [May 2010 Exam Part 1](#)

 [May 2010 Exam Part 2](#)


 [Format of Manufacturing account](#)

 [Peter kirk Qt and solution](#)


---


1 February - 7 February 


---

8 February - 14 February 


---

15 February - 21 February 


 [Mr Robertson Qt](#)


 [Mr Delaney Qt and Solution](#)


---


22 February - 28 February 

---


1 March - 7 March 


 [CA Manuf Qt and Solution](#)


 [CA 2 Manuf Qt and solution](#)


 [Debtors \(receivables control account\) Qt and sol](#)


---


8 March - 14 March 

 [Club accounts 47.4 qt and solution](#)


 [Club account question](#)


 [2009 Exam qt and sol club accs](#)


 [Solution 2009](#)


 [Club account notes](#)

---

15 March - 21 March 

 [Control Accounts format](#)

 [Creditor control Account](#)

 [Conreol acc qt and solution](#)

## Using a multimedia weblog in the language classroom

**Author:** Dr. Mary Ann Kenny - Lecturer in Languages

Students of German in first and second year create a personal weblog using blogger.com. Weekly blog tasks are set by the instructor relating to topics covered in the course. Students are required to make postings to their blogs integrating text, image, sound and video. A range of Web 2.0 and other applications is used for this purpose including PowerPoint, Voki, Voice Thread and Movie Maker. The blog comment feature is used by the instructor to provide formative feedback to students on their postings. Students are encouraged to read and act on this feedback both during class time and outside of class.



The project was awarded the European Language Label in September 2010.

Students have commented very favourably on the innovation, citing in particular the motivational, linguistic and technical benefits of using a blog in the language classroom. The lecturer has run a workshop for language colleagues at the institute, some of whom have adopted the innovation into their language modules. The lecturer was also invited by the French lecturer's association to run a workshop in November 2010 for colleagues from other institutes across the country.



## Online interactive e-learning system for accounting students

**Authors:** Dr Matt Smith - Senior Lecturer in Computing  
Fiona Malone - Senior Lecturer in Computing  
Dr Markus Hoffmann –Lecturer in Computing

This inter-departmental project has involved developing an interactive web-based accounting case study. The online system aims to support learning of accounting by first year business degree students. Computing staff (and students) have work with Accounting staff to develop the system over several years.

The system offers the following:

- 100s of students can work on the same case study – each having their individual work stored uniquely - so students can log-in and continue working on their version of the case study at any time
- Staff can develop new case studies, which can be made available instantly to all enrolled students
- Some pages automate accounting tasks, such as generating trial balances, other pages require students to look up accounting transactions and then complete select the appropriate accounts to debit/credit as part of standard accounting procedure
- Some pages provide visual 'hints' to students, to indicate when entered values are incorrect

In the future it is hoped to extend the system as follows:

- More case studies to be created (perhaps from simple ones to progressively more complex)
- Extension of the system to support automated ASSESSMENT of student's answers
  - (at present the system is being prototyped as an interactive aid to self-study)
- further sections to be added for more complex accounting operations.

Preliminary informal feedback from staff and students has been encouraging. It is planned to conduct a feedback survey at the end of the current semester, on which to prioritise future work on the project.

For more information, visit: <http://itbaccounting.com/>





## Providing students with practical experience of personal training sessions using staff members

**Author:** Eugene Eivers - Lecturer in Sports Management

At the start of the second semester ITB welcomed its first's Personal Fitness Training Program. 3<sup>rd</sup> year Sport Management and Coaching students were given the task of Personal training a staff member at ITB. Students were allocated a staff member at random. The fitness journey of each staff member consisted of twenty challenging personal fitness training sessions.

After an initial consultation the students devised a fitness and nutritional plan to cater for the specific goals and individual needs of their client. Staff members were then put through their program twice a week, and also got extra fitness homework to be completed on the weekends. Students used specific motivation techniques to keep their client focused, also ensuring that the program was interactive and enjoyable.

Students provided a detailed log of the following

- needs analysis
- consultations
- programme design rationale
- programme implementation
- monitoring and control mechanisms
- problems, conflicts
- negotiations, motivation techniques used
- feedback techniques used
- conclusions, recommendations, learning points, events and milestones

This has been a fantastic opportunity for staff to avail of the expertise of the Institute's 3rd Sports management students.

The students showed excellent passion and professionalism with aiding the staff on reaching their fitness goals.

## Implementation of Enquiry Based Learning

**Authors:** Dave Murphy - Lecturer in Business Information Systems

**Contributors:** Ann Murphy – Lecturer in Business Information Systems

This initiative arose from my participation in 2009 in the first delivery of a new Certificate in Enquiry Based Learning (EBL). The course was aimed at lecturing staff from ITB and other third level institutions, who wished to gain the skills, knowledge and competencies needed to incorporate EBL into their teaching practice. EBL encompasses a range of pedagogical approaches, including Project and Problem Based Learning (PBL), whose common characteristic is that learning is driven by a process of enquiry on the part of the learner.

Following successful completion of the course, EBL was introduced into two modules:

- Process Analysis – Level 8 (10 students)
- Business Information Systems – Level 5 (60 students)

The experience and outcomes of this initiative are described below.

### Objectives

The objectives for this initiative were to:

- Learn about the EBL process in practice,
- Evaluate my own involvement and whether the approach suited my style of teaching,
- Evaluate the response of students at different levels of the learning spectrum, and
- Evaluate the outcomes in terms of student results.

### Activities

#### Level 8 Process Analysis

This course is delivered to 4<sup>th</sup> Year Business and IT Level 8 (\*Honours Degree) students. The subject assessment breakdown is 40% continuous assessment and 60% exam. One of the key learning outcomes for the course is that students learn a method for the analysis of business processes and, as part of this exercise, existing and recommended processes are modelled using process modelling software (IBM WebSphere). In previous years my approach to this element of the course was to provide the students with a case study based on my own industrial experience. Students were then required to use WebSphere to model the existing and modified processes described in the case study. The delivery this semester was based partly on a PBL exercise designed to allow the students, in groups, to extend their experience by eliciting the information directly from me through a structured interview, in my role as CEO of the company involved. Thus, rather than my providing the information directly, the students had to actively engage to perform directly in the role of Process Analyst. Further, they were given the opportunity to work as a team in deciding what information was important, what structured questions had to be prepared, how they would structure the interview and how they would document the outcome. The exercise was supported by a discussion

on the contents of a lecture on Process Analysis and workflow design. However, this was not delivered as a lecture but was used as the basis for group discussion. The students were required to use their own discretion as to what was important for the task provided.

### **Level 6 Business Information Systems**

This course is delivered to all first year business students. It consists of two elements, practical (PC software applications) and theoretical (the use of IT in general business applications.) The use of PBL was confined to one group of students, Sports Management, and was implemented in two sections of the theoretical elements of the curriculum:

- IT Systems
- IT Ethics and Security

Material for these sections of the course is normally delivered solely through lectures.

These students had no previous exposure to EBL. Three EBL problems were devised for the project.

- Problem 1 was devised as an introduction to PBL and to allow the students an opportunity to get together in groups and begin the process of getting to know each other, appoint people to the various roles, and consider some of the basic aspects of IT in business. The problem was devised to have a specific Sports Management appeal.
- Problem 2 was an extension to Problem 1 and was devised to allow further consideration of the issues involved following debate on the outcome of Problem 1.
- Problem 3 was devised to explore the issues involved in Ethics and Security Issues in IT.

The plan was that each problem would consume four hours of the allotted lecture slots, with the students being expected to spend a further hour in discussion and preparation outside of the allotted teaching time. My approach was to use a debating style for the consideration of the discussion outcomes from each group.

### **Results and Outcomes**

#### **Level 6 Business Information Systems**

It is the experience in the Department of Business that first year Sports Management students tend to consider that the business modules are relatively unimportant compared to the sports modules of their course e.g. coaching. This is a common misconception among students entering the course, since the course is evenly divided between sports and business subjects. As a result there can be a lack of engagement with the business subjects, including Business Information Systems. Although it is obvious that Sports *Management* requires an understanding of the importance of IT in business, many of the first year students have a perception that the management elements are irrelevant to their college experience. My rationale in selecting this module was to make the material more

engaging with the objective of active participation by the students which might perhaps increase their enjoyment of the module, and therefore their understanding of the importance of the material.

The first significant outcome was that attendance was excellent. Whether this was as a result of the teaching approach is debatable. However, in my ten years of teaching I have never experienced this level of engagement from first year students. Indeed, what was even more surprising was that my 2 hour lecture slot began at 9 am, and, in all instances, there was a queue of students waiting to enter the room when I arrived! It could have been quite coincidental, but colleagues teaching the same module to general business students did not report the same experience.

Engagement by the students with the EBL process was excellent. They readily worked in teams, assigned the roles involved, actively participated in the debates and produced the required reports.

### Level 8 Process Analysis

One critical assumption which I made was that students at this level (Final Year Honours Degree) should be able to adapt quickly to new approaches, and that significantly less direction would be required to achieve a satisfactory outcome relative to that needed for first year students. I therefore designed the problem to be open ended in terms of allowing the students to explore the material and ideas for themselves with minimal direction.

Although the level 8 students had not previously been exposed to the EBL approach, they would have had significant experience of group work and self-directed learning. It seemed to me that these students had difficulty in coping with the open ended approach adopted to the EBL problem and continuously sought direction from me.

Depending on their own judgement is a major issue which very few of them deal with effectively. When I state that they must clearly explain their assumptions, inevitably they fail to understand that their judgement and assumptions have validity! It takes quite some time to sink in that they are mature enough and have sufficient knowledge and resources to make intelligent decisions.

### Conclusion

My initial conclusion is that using EBL, or other similar approaches, with higher level students, *when the groundwork has not been properly laid in previous years* can cause difficulties in terms of the student's perceptions of themselves as learners. It is probably too late to start using EBL in the final semester of a four year degree course, and more integration of the approach within the overall course structure is required. As a teaching approach I found it far more enjoyable than directing lectures to passive students. The level of engagement was heartening and very enjoyable. Although I didn't conduct any formal survey of the students, it is my belief that they also enjoyed the experience.





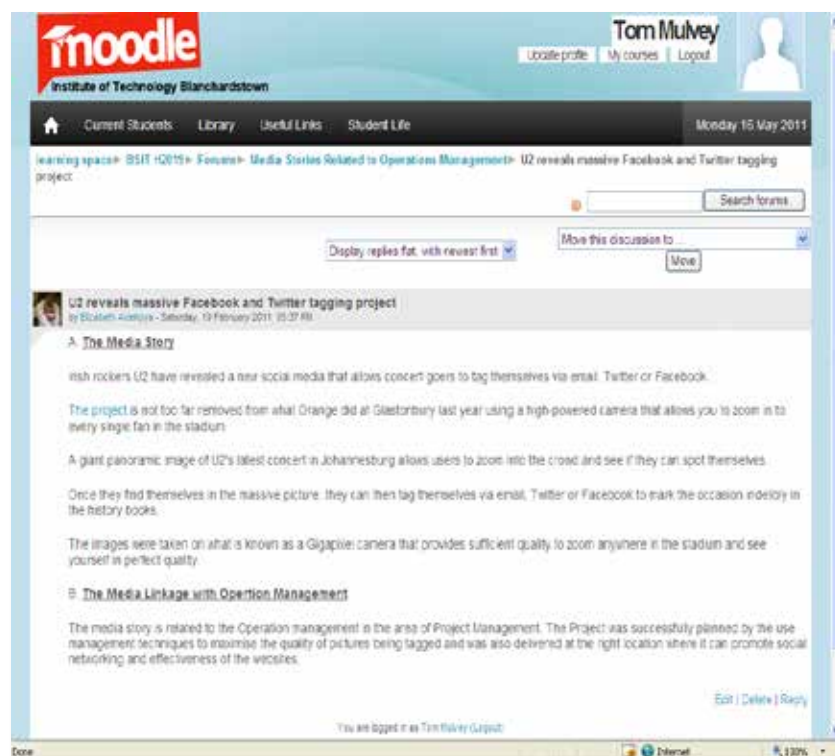
## Media Stories Related to Operations Management

**Author:** Tom Mulvey - Lecturer in Business

This initiative encourages Business students to identify and write about current media stories which are linked to the "Operations Management" subject. The Moodle News Forum platform is used as a discussion board where students share their interpretation of the media stories. The student contribution to the forum consists of two parts: Part A briefly outlines the story and Part B briefly identifies the linkage with a specific topic within the Operations Management course.

BN010/BN103 Business and IT students (2nd year) plus General Business (3rd year) students have been involved in this initiative since September 2010. Students are requested to make at least one contribution per week and many students have been contributing more than this, especially the Business and IT students.

The experience so far is that the students who frequently contribute to this news forum tend to develop a better understanding and appreciation of the Operations Management subject. They also tend to perform better in continuous assessments and in end of term exams. Attendance at lectures and tutorials is also better from the students who contribute regularly. Feedback from students on the QA1 forms is also positive in terms of their learning from this initiative. Answers to exam questions from regular contributors typically include rich examples demonstrating a solid application of Operations Management theory.



# Creation of learning objects for Creative Skills Practice in Social Care

**Author:** Maria Kenneally - Lecturer in Humanities

**Contributors:** Denise Lyons, Lecturer in Humanities (ITB)  
Sue Callaghan, Lecturer in Humanities (AIT)  
Sharon Phelan, Lecturer in Humanities (IT Tralee)

## Project content

This project is titled 'Creative Skills for Social Care Practice', and is a collaborative endeavour between the Blanchardstown, Athlone and Tralee Institutes of Technology. It draws on the ideas and experience of Drama, Art, Music and Dance practitioners working in these colleges.

The project consists of **five** creative workshops and accompanying videos. These workshops are both *theoretical* and *practical* in their approach. They provide the theory underpinning creative arts practice and also detail a range of practical drama, art, music, and dance activities for the development of creative skills in a Social Care context. The easy to use and highly educational 'Articulate' computer package is used to present the project content. The visuals and voiceover options of Articulate make material more accessible while end of session quizzes test comprehension.

- 1) Workshop one concentrates on the physical, intellectual, social and emotional benefits of incorporating the creative arts into a Social Care context.
- 2) Workshop two (drama) is dedicated to the art of storytelling and concentrates on the use of puppetry to help and heal.
- 3) Workshop three (art) charts the various stages of children's artistic development, and explores ways in which their artistic output may be more creative and less inhibited.
- 4) Workshop four (music) focuses on rhythm, and uses rhythm exercises to bring people together.
- 5) Workshop five (dance) analyses the techniques of Hungarian choreographer Rudolph Laban and applies these to a children's movement session using the alphabet.

Fourteen Institutes of Technology provide a module in creative studies as part of the BA in Applied Social Studies/Social and Community Development/Early Childhood Education/and Youth Work. However, not all Institutes offer a variety of creative experiences including drama, art, music and dance. Most colleges provide one or perhaps a combination of two. This project will enable students from these 14 IoTs to experience a variety of creative workshops not normally available in their college. A key example is the dance workshop which will be a new learning experience for 13 colleges, as dance is only provided in Tralee IT.

## Usage

This project contains reusable learning resources that can be downloaded from the NDLR website by members of the Social Work and Social Care SMARTCoP. Similarly they can be used by educators and students in the fields of Social Care, Social and Community Development, Youth Work and Early Childhood Care and Education. In-class they will provide for hands-on, experiential learning, while

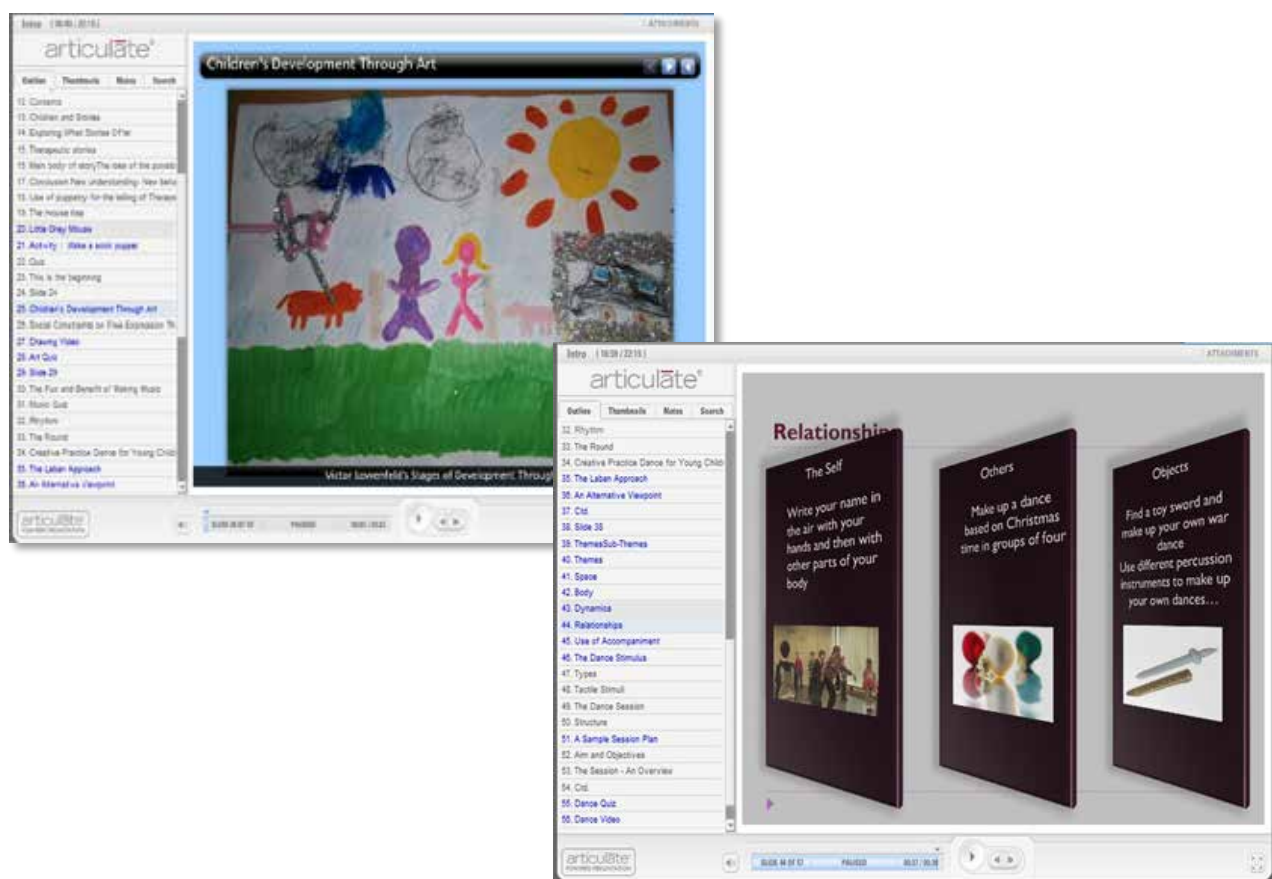
later at home they'll provide consolidation via on-line, self-directed learning. We also plan to showcase the project at the next IASCE (Irish Association of Social Care Educators) gathering.

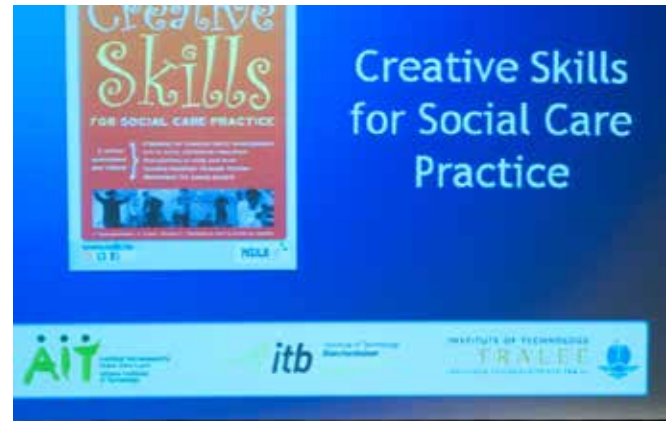
### Student feedback

Anecdotally the student feedback has been very positive. In September we plan to collate feedback from students when we integrate these workshops into the teaching of our creative skills modules.

### Staff feedback

Lecturers participating in this project feel that the experience has been hugely beneficial, from a professional and a personal point of view. It has encouraged greater engagement with tools for creating on-line learning resources, and alternative ways to deliver subject content. It has also allowed for the exchange of ideas among peers and new, collaborative networks between colleges.







## Retention survey

**Author:** Francis McGeough - Lecturer in Accounting & Finance

A review of the statistics for first and second year enrolments showed that the Department of Business was losing one third of its first year intake through non completion of first year or failing exams. Given the huge effort made by many staff in ITB, this was deemed an unacceptable loss of students. The Department wished to develop a retention strategy. The first step in doing this was to survey our first year students. A detailed questionnaire was prepared using a mix of open and closed questions. Lecturers asked students to complete the questionnaire over a three day period. The questionnaire was also emailed to students to try and ensure a broad range of answers.

The analysis of the feedback showed that the majority of students who completed the questionnaire are highly motivated. They have come to ITB to get a qualification as a way of improving their job prospects and are keen to pass their exams. They are also fully aware of the importance of attendance. However, they also acknowledge that their own efforts at self study are minimal in most cases. When asked to assess the work rate of their classmates, they were strongly of the view that the vast majority were doing very little. They suggested that many in their class were poorly motivated.

Arising from this survey a more comprehensive induction programme will be developed. This will look at helping students to develop appropriate study skills, time management and personal development. The objective is to help the students realise their full potential in ITB.





## Using Moodle for Organising Information Management Course

**Authors:** David Murphy - Lecturer in Business Information Systems

Ann Murphy - Lecturer in Business Information Systems

Information Management is a mandatory module for all students across second year Business Courses - General Business, Business with Information Technology, International Business and Sports Management. Students are divided into 2 groups for the theory lectures and 9 groups for the practical classes, five lecturers are involved in the delivery of the laboratory classes which comprise sessions principally on Advanced Excel. The module is assessed on a 100% Continuous Assessment basis broken down as

- 15% Advanced Excel Exercises
- 20% Individual Research Assignment
- 30% Group Practical Project
- 35% In Class Assessment Test

A Moodle site was set up to manage the Practical Classes. Course and practical class information (exercises and files) was made available to the students and other lecturers through Moodle.

The practical classes involved the lecturer demonstrating the techniques and the students completing exercises based on these techniques. All students were required to upload their exercises, tests and presentations onto Moodle into the appropriate course upload area.

The completed site comprised multiple sections to manage the distribution of hand-out material and the submission of student work. Each upload area had a final submission date which was notified to the students both during the laboratory classes and as a label on the appropriate upload area.

The use of Moodle made management of this course very efficient. The students knew exactly where to upload their work and by what date and received their marks and feedback completely through Moodle. From a co-ordination perspective, it has been found that Moodle is an extremely useful course management tool, particularly where there are many lecturers involved in the delivery of the module. There is a significant overhead for the person charged with the task of maintaining the site however. Updating of the site materials was restricted to one co-ordinating lecturer. Other lecturers were only allowed to access but not to update material. This places a heavy burden on the module co-ordinator. On the other hand, those who are involved in course delivery have a structured and well defined set of materials and course management facilities which is very beneficial in terms of module management. Checking that students had completed work, marking the exercises, tests and presentations and giving feedback was enabled by the Moodle site. All student work was saved electronically in the one place and could be marked on line. Any notices that the students needed to receive was enabled by the Moodle Forum eMail facility.

# Introduction of a hybrid model of EBL in Business Systems Analysis & Design

**Author:** Ann Murphy - Lecturer in Business Information Systems

In previous years, the Systems Analysis & Design modules were taught by traditional 'passive' methods i.e. a combination of Lectures and Laboratory sessions (demonstration followed by student exercises with instructions) and examined based on 'Products' such as a terminal examination (50%) and continuous assessment (50%) which included a small group project worth 25% of the overall mark.

Anecdotal evidence suggests that many students dislike Group Projects as they feel that the assessment criteria applied to the group may be unfair or significantly biased towards those who fail to participate sufficiently.

A hybrid model of Enquiry based learning (EBL) was introduced as the teaching methodology to the 2<sup>nd</sup> year students for these modules. The lectures and 50% examination remained as before and EBL was pioneered in the lab sessions and for the Project.

One of the main features of EBL is that the students are assessed on the 'Process' i.e. their contribution to solving the problem as well as the 'Product' i.e. the final report. The students are divided into large groups (5-6) and are required to identify and research each aspect of the project rather than the traditional division of work among the group members. Students then pool their ideas and produce a group deliverable for each stage of the project.

In addition to the final project document, each student was required to complete a group evaluation form which was designed to evaluate their own and other students' participation in each section of the project and in the group process as a whole.

Following the lecturer determination of the overall project grade, each student was awarded a percentage for each deliverable, based on the evaluation of their effort for that particular section, calculated from their own and the other group member's evaluation forms. In this way, students final marks were based on their individual engagement in the project.

Students were also required to submit a 500 word individual reflection on their contribution to the group and what they had learnt from the EBL group approach.

Feedback from the students has been very positive; those who work hard feel that they have been rewarded and that other students have not benefited unfairly from their efforts. In addition, the students felt that they had learnt about every aspect of the project rather than an allocated section and had gained skills in evaluating both their own and others work. Further, their communication skills had been greatly enhanced.

## Entrepreneurship Education

**Author:** Cormac McMahon

The SIF ACE initiative comes to a close this year but, hopefully, its outputs will have long-lasting effects at ITB and the other partner institutes. ITB piloted the BSc (Hons) in Entrepreneurship this year for horticulture and engineering students. As an “alternative” final-year for students considering an entrepreneurial career, the intention is to broaden the programme to other disciplines including IT, Digital Media, Business and Sustainable Electrical & Control Technology.

Feedback from students has been very positive and many have flourished under the less structured, more creative environment underpinning the programmes. Based in ITB’s innovation centre, the LINC, students developed some exciting business ideas and pitched to Fingal County Enterprise Board and many intend to continue with the development of their ideas once their studies are completed.



*Entrepreneurship Students, Micheal Meegan and Ritchie Reilly, winners of ITB’s Business-Plan Competition along with student enterprise intern, Aidan Stritch, and Head of Business & Humanities, Pat O’Connor*



*Some of ITB’s Entrepreneurship students at and investor forum for startups in the LINC*

# Development of a Moodle VLE Plug-in to Support Simultaneous Visualisation of a Collection of Multi-Media Sign Language Objects

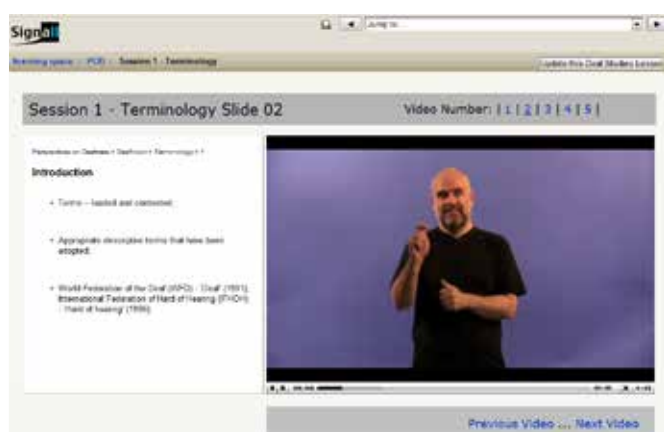
**Author:** Dr. Markus Hofmann

**Contributors:** Dr. Brian Nolan, Kyle Goslin, Dr. Lorraine Leeson (TCD)

Using Virtual Learning Environments (VLE) to support blended learning is very common in educational institutes. Delivering learning material in a flexible and semi-structured manner to the learner transforms such systems into powerful eLearning tools. However, the presentation and visualisation of individual or multiple learning objects is mostly dictated by the system and cannot be altered easily.

This project is a collaboration between Trinity College Dublin (TCD) and the Institute of Technology Blanchardstown (ITB) that aims to improve the simultaneous visualisation of multiple multimedia objects for deaf learners of ISL. The project is implemented using the Open Source VLE tool Moodle. Moodle's nature of being Open Source and having the ability to code plug-ins qualified it to be the most suited vehicle to address the visualisation problem. Traditionally VLEs allow the viewing of one learning object at a time, which meant that deaf learners could either view a pre-recorded, signed in ISL, video lecture or concentrate on textual accompanying content but not both. The developed Moodle plug-in allows academics to group multiple videos into a 'lecture'. It further facilitates the addition of rich text content to each video. The learner can select and view one video from a possible sequence of many as well as view the text that belongs to the video.

Current efforts of the development of the project focus on cross-browser and cross-platform compatibility as well as dynamic rich text changes pending on the progression of the video.



## Integrated Tutorial Tool for RapidMiner 5

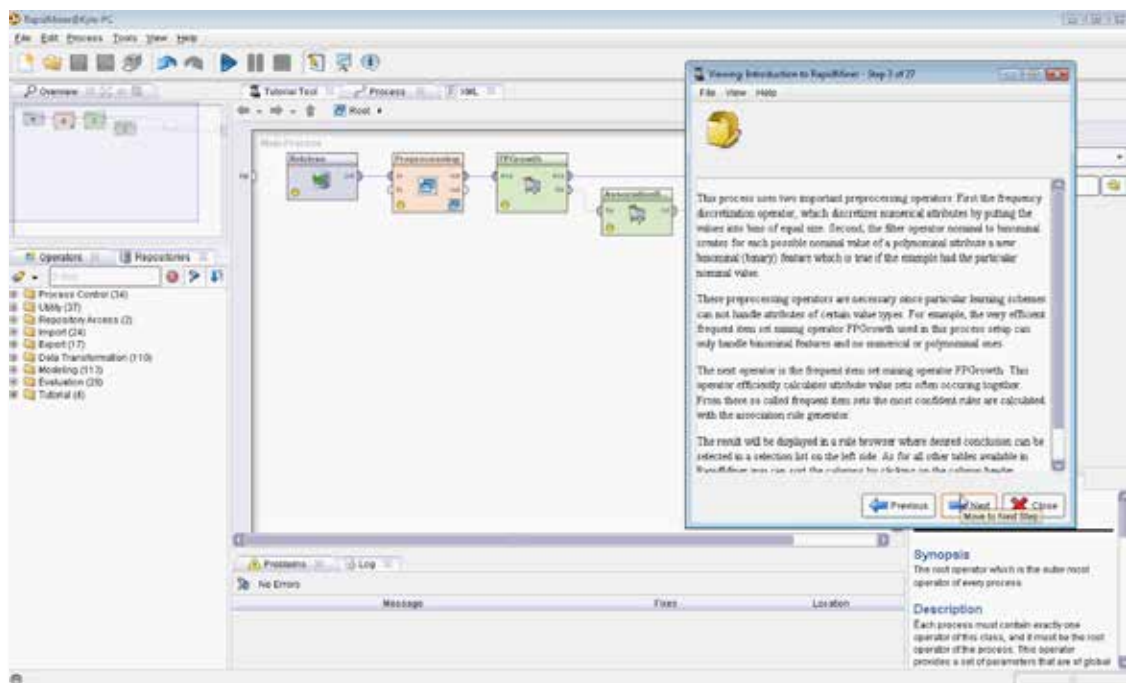
**Author:** Dr. Markus Hofmann – Lecturer in Informatics

**Contributors:** Kyle Goslin (researcher)

The field of data mining can be complex and most beginners find it difficult to make the link between practical work and the large amount of supporting theory which is needed for even the most basic data mining tasks. As a solution to this problem an integrated interactive tutorial tool was developed for RapidMiner 5 which allows educators to dynamically create lesson content for their students or the wider learner community.

The tutorial tool consists of two main elements, a tutorial editor which allows educators to create custom tutorials using RapidMiner and style the content with a XHTML What You See Is What You Get (WYSIWYG) editor and an interactive tutorial viewer which the student can use to view the tutorial and work through it independently at their own pace.

Each tutorial consists of a number of steps which builds up the complete lesson. Each individual step consists of an XML based process for RapidMiner which implements the practical data mining task and additional course material describing the step that is being performed.



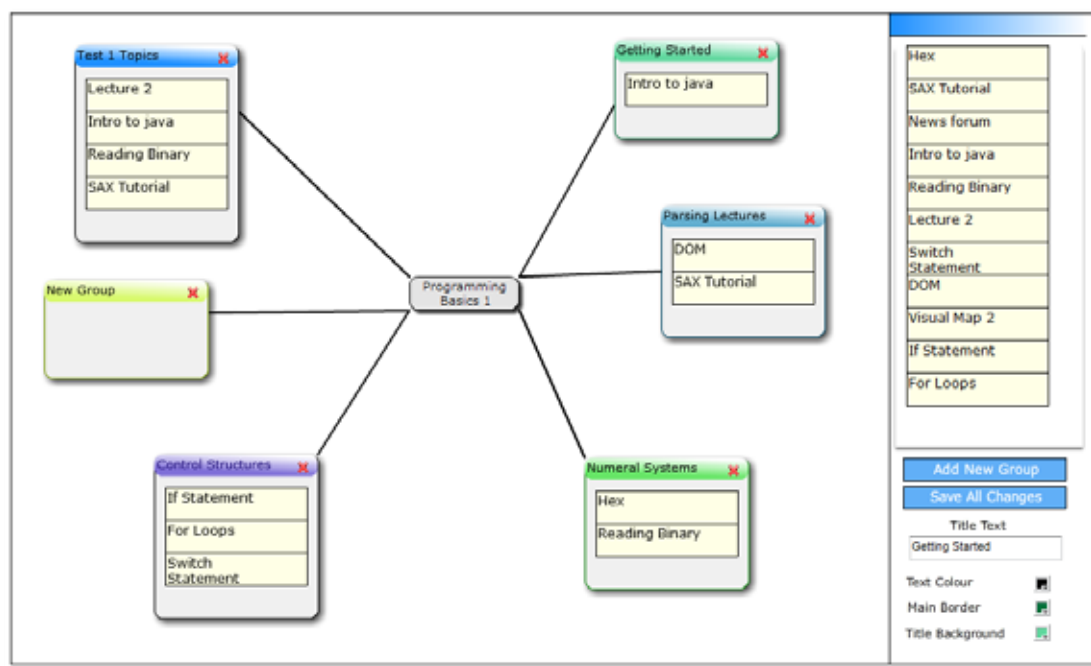


# Interactive Visual Map Tool for Moodle

**Author:** Dr. Markus Hofmann – Lecturer in Informatics

**Contributors:** Kyle Goslin (researcher)

This project focused on the development of a visual map plug-in for the Virtual Learning Environment (VLE) Moodle. Moodle allows educators to upload course content in a formatted structure to an online course page which can be easily accessed by students over the internet. However, Moodle currently does not offer any flexible solutions to outline the relationships between resources on a course page. As a solution to this a visual map plug-in was developed which allows educators to create Adobe Flash based visual maps using the resources which have been uploaded to a Moodle course page. Each visual map creates logical visual representations outlining relationships between resources on course pages, providing students with a better understanding of the course structure. Each visual map can be viewed by students allowing them to visualise the relationships between resources and open resources directly through the visual map. Furthermore each learning object is hyperlinked to the actual resource and can therefore be accessed directly from within the map.



# Design and Development of a Flexible Learning Model in Mechatronic Engineering

**Author:** Dr. Mohamad Saleh – Lecturer in Engineering

## Abstract

Mechatronic products are widely available in the market for various uses and applications, and they are expected to develop further in the future with increasing competitiveness. However, generally accepted tools for modeling, simulation and design of multidisciplinary products are not yet known. This paper is an attempt to tease out the traditional educational methods and the implication of flexible learning tools across mechatronic courses. It takes into account the latest application of Web 2.0 and other relevant techniques; components of delivery and material and resources needed. The material presented in this paper is part of ongoing research in engineering education and is a revised and expanded version of published some peer reviewed papers by the Author.

## Background

The argument about personalized and collaborative learning has been taking place in recent years in order to produce flexible learning and teaching in educational institutions. However, education at its upmost is to produce the right skills and knowledge needed for society to grow gracefully. Therefore, the learning and teaching method should play a significant role to improve the knowledge and skills of the learner and the teacher at minimum resources i.e. time and money.

One of the paramount features of this century is the abundant availability and accessibility of mobile digital devices and the internet at all levels. These devices are available for babies/children and adolescents/ adults in a form of toys and necessities i.e. mobile phones, iPons and Personal Digital Assistants (PDAs). To this extent, a new culture of mobility of learners has impartially affected the landscape of teaching and learning in educational institutions worldwide. It goes without saying, that there is a need for flexible learning and teaching paradigms for contemporary society. The ability to capture the classroom activity of campus based courses and the increase of online technologies for communication outside of the classroom has now made it possible for students to take part in courses with minimal campus attendance [1]. Web 2.0 or learning 2.0 technologies are very popular among students and public alike, in particular young Internet users [2]. These technologies are basically social digital applications that enable online interaction and collaboration between users. They are co-creators of content and form a network which constitutes a collective resource (e.g. Facebook , Twitter, blogs etc.). The widespread use of Web 2.0 technologies and the new native students entering university is reported as an underway hidden revolution in higher engineering [3]. These technologies enable educator to shift from face-to-face or blended learning approaches to blended contents (i.e. blogs, wikis, repositories) and blended learning environments called personal learning environments [4]. However, in some ways, learning and teaching with Web 2.0 technologies, in particular in the undergraduate context, presents familiar pedagogical issues with an overlay of new questions and possibilities [5]. For instant, what are the temptations, conventions and understanding the academic integrity [6]?. It was argued that virtual communities, if specifically

adapted to life-long learning settings and not generalized to social networks, are more suitable for educational purposes, thus allowing a better use of social network tools like blogs, wikis, etc [7].

In the last decade, flexible learning and teaching paradigms at engineering education have been presented in many ways. It was argued that educational technologies are still task-oriented rather than process-oriented and as such not capable of effectively supporting an integrated study process [8]. An interactive e-learning environment is to enhance student participation, motivation, and learning effectiveness [9]. A new definition of mobile learning (m-learning) was described and the features of mobile learning were introduced in [10]. It has been reported in [11] and [12] that m-learning can motivate students and teachers, and also can represent an effective pedagogical method as with any other conventional learning method. The flexible learning and teaching in engineering education has started simultaneously with the development and use of information technology such as multimedia applications, simulation tools and educational platforms [13]. It was demonstrated that Web-based learning supports students with the learning flexibility and the adaptability [14]. Recently, virtual laboratories has been promoted to be an online tool to maximize the learning flexibility of engineering students [15].

### Material and Tools

The design of flexible learning and teaching material is based on what learning material can be found, how learning material can be presented and where learning material can be shared. This is to pedagogically motivate, inspire and empower learners/students at minimum time and cost and at any location. It is apparent that this method enables the learners to be independent and to have some control over time and place. So far, there are various ways of applying flexible learning and teaching methodologies at educational engineering institutions. Some institutions are using blending learning in synchronous and asynchronous fashion. Other institutions still believe that the classroom face-to-face learning and teaching is best for some modules in the engineering curricular. On the other hand, there are promising attempts among the engineering institutions to deliver engineering education as virtual as possible. To this end, students are encouraged to use the latest technologies in the internet social networks (i.e. wiki blogs, blackboard, facebook etc.), mobile devices ( i.e iPods , smart phone, etc. ), Learning management systems (i.e Moodle), e-learning products (DVD's and audios streaming, Breeze, Camtasia Studio etc.), virtual classroom (i.e. Adobe Connect etc.). This is to enable students and instructors to collaborate and share knowledge and information with each other to maximize their learning outcome of a subject matter. However, given the empirical and theatrical in the engineering curricular, it is evident that the engineering model for flexible learning and teaching is not straightforward, especially when it comes to heterogeneous students. Thus, the engineering model for flexible learning and teaching should mimic the empirical and theoretical abstractions which are the corner stone in engineering education. This needs a substantial amount of simulations animations and creativity. This requires purpose made remote engineering computer aided tools, software and techniques. Consequently, more resources and hence more funding are needed to implement and maintain a fully functional flexible learning and teaching system in engineering courses.

### Example

The following example is a proposed project to deliver a Mechatronic Practice module in flexible learning and teaching mode at the Institute of Technology, Blanchardstown, for the 1st Year Bachelor degree in Mechatronics. This delivery mode is taken into consideration the integral aspects of this module with other subjects, in 1st year mechatronic curricula, as a form of project based learning. Thus the learning outcome of this module is taken into account the learning outcome of other related modules in the 1st year curricula. The design philosophy of this delivery is based on the following:

*What learning material can be found?* The module consists of theatrical and practical components of health and safety, machine tool operations, fabrications and material technologies. The workshop in the college is the operating theater to deliver these components. Therefore, these aspects should be presented to online learners in a creative fashion.

*How leaning material can be presented ?* The components of this delivery mode are presented with the use of computer graphics, animation and simulation, CAD/CAM/CAE software, virtual classroom video conferencing and Web 2.0 tools. This includes solidworks, FEA, Labview, Mathlab MathCAD etc. This software is made available to learners/instructors on the system computer server through online protocol.

*Where leaning material can be shared?* Quizzes are provided online, through the system computer server, using the internet mobile moodle. Also, students are expected to spend a synchronized time in the workshop to get a hands-on approach for customized mini projects. A number of students may work together in rotation on these mini projects theoretically and practically. In this way the enrolled students are expected to cover all the practical and theoretical aspects of this module equally.

Figure 1 shows the system configuration of the flexible online of Mechatronic Practice. The instruction center is the drive of this system, where lecturers, experts and backup supports are available for the learners and the livelihood of the system. They are attentive to the system by providing all the help and assistance to the learners with the latest updated learning material, maintenance and technical backup support. Apart from producing and posting learning material, lecturers/ instructors are engaged with learners in synchronous and asynchronous online communication through Web 2.0 and digital device tools. The learners can discuss, communicate and learn in the same fashion, at their own choice, at any time.

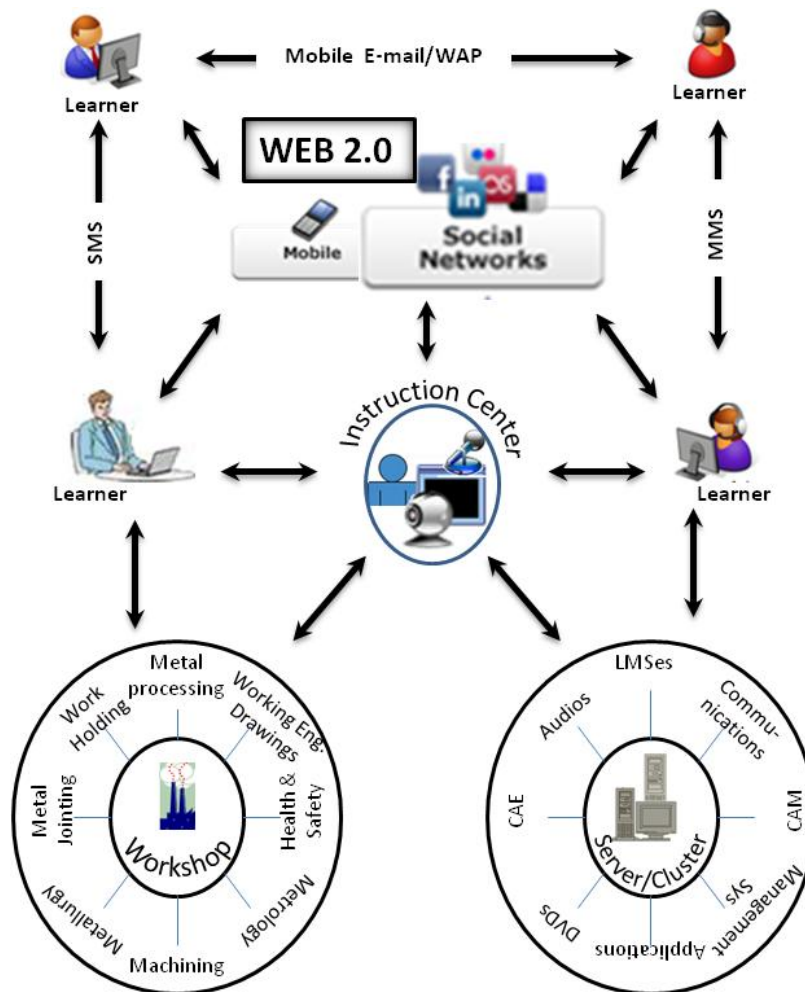


Figure 1. Configuration of the flexible online of Mechatronic Practice.

## Conclusion

Certainly the digital era and new development in the market have been a challenge for the education process in engineering institutions at all levels. The flexible learning and teaching method is taking advantage of latest technologies of the web 2.0 and mobile digital devices and could be an effective educational engineering method. It is suggested that further funding and more investigation are needed on the model presented so as to evaluate the effectiveness of this method in mechatronic/engineering courses.



## References

- [1] Brian Mulligan, Brian Coll and Grace Corcoran , " A Lean Approach To Engineering Education on Line, International Symposium for Engineering Education , 2007, Dublin City University, Ireland.
- [2] Pascu, C., Osimo, D., Turlea, G., Ulbrich, M., Punie, Y. & Burgelman, J-C. (2008) Social computing - Implications for the EU innovation Landscape, Foresight, 10(1), March 2008, pp. 37-52.
- [3] Denis Gillet, Effie L-C Law and Arunangu Chatterjee " Personal Learning Environments in a Global Higher Engineering Education Web 2.0" , IEEE EDUCON Education Engineering 2010, April 14th – 16th, 2010 in Madrid, Spain.
- [4] G. Attwell, " the personal learning environments- the future of eLearning?" eLearning Papers, Vol. 2(1), 2007.
- [5] Rosemary Chang, Gregor Kennedy and Tom Petrovic "Web 2.0 and user-created content: Students negotiating shifts in academic authority" *Proceedings ascilite Melbourne 2008*, pp 165-169.
- [6] K. Gray "Originality and plagiarism resources for academic staff development in the era of new Web authoring formats. In C. Montgomerie and J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007* (pp. 2404-2411). Chesapeake, VA: AACE.
- [7] Colazzo, L. Molinari, A. Villa, N . " Collaboration vs. Participation: The Role of Virtual Communities in a Web 2.0 World" Education Technology and Computer, 2009. ICETC '09. Inter. Conf. , Singapore, 2009, pp 321 – 325.
- [8] Marjanovic, O. Orlowska, M.E. "Making flexible learning more flexible" Advanced Learning Technologies, 2000. IWALT 2000. Proceedings. International Workshop on, pp 59 - 62
- [9] Min Jou Chien-Pen Chuang Din-Wu Wu Shih-Chi Yang . " Learning robotics in interactive Web-based environments by PBL" Advanced robotics and Its Social Impacts, 2008. ARSO 2008. IEEE Workshop on, pp 1 – 6.
- [10] Yi Jin "Research of One Mobile Learning System" Wireless Networks and Information Systems, 2009. WNIS '09. International Conference on, Shanghai, pp 162 – 165.
- [11] M. Sharples, J. Taylor, and G. Vavoula, "Towards a Theory of Mobile Learning " , Proc. of 4th International Conference on mLearning – mLearn Conference, Cape Town, South Africa, 2005.
- [12] C. Romero, S. Ventura, and P. Bra, "Using mobile and web-based computerized tests to evaluate university students", Computer Applications in Engineering Education Journal, Vol. 17 Issue 4, pp 435 - 447, 2009.
- [13] T. Martín Blas and A. Serrano-Fernández, "The role of new technologies in the learning process: Moodle as a teaching tool in Physics", *Comp & Edu.*, vol. 52, pp. 35–44, 2009.
- [14] Qinglin Guo , "Implement Individual Web-Based Learning Environment", Database and Expert Systems Application, 2008. DEXA '08. 19th International Conference on, Turin, pp 639 – 643.
- [15] E. Aziz, S. Esche, and C. C., "Design and implementation of a virtual laboratory for machine dynamics," International Journal of Online Engineering (IJOE), Vol 6, No 2 (2010).

*"The most successful people are those who are good at Plan B."*

- James A. Yorke



*Institute of Technology*  
**Blanchardstown**  
*Institiúid Teicneolaíochta*  
*Baile Bhlainséir*

Blanchardstown Road North,  
Dublin 15, Ireland  
Phone: (01) 885 1000  
Fax: (01) 885 1001  
E-mail: [info@itb.ie](mailto:info@itb.ie)  
Website: [www.itb.ie](http://www.itb.ie)

Bóthar Bhaile Bhlainséir Thuaidh,  
Baile Átha Cliath 15, Éire  
Guthán: (01) 885 1000  
Fax: (01) 885 1001  
Ríomhphost: [info@itb.ie](mailto:info@itb.ie)  
Suíomh Idirlíne: [www.itb.ie](http://www.itb.ie)