

# Assessment: Motivate not Aggravate

(non-commercial workshop)

Lejla Rovcanin  
lrovcanin@ncirl.ie  
National College of Ireland,  
Dublin, Ireland

## ***Abstract***

This workshop will follow a two-pronged approach and will focus on both the lecturer and the learner. Two issues will be addressed:

- using assessment to increase (computing) students' motivation,
- using common office tools for simple and rapid development of assessments.

Based on a number of factors but primarily on the downturn in the IT market computing students' motivation to decline. Continuous assessment is being used as a technique to reward constant student participation. However the delivery of quality assessment can measurably increase the workload of academic faculty. A great deal of research is focused on the value of inspiring students' interest in the subject. The focus of this research has been to increase the students' motivation using appropriate assessment techniques.

Publishing teaching materials online has become a de facto standard in the School of Informatics at NCI. The time needed and lack of skills needed for online content production prevents lecturers from incorporating Computer Assisted Assessment (CAA) into their teaching strategy. There are a number of Learning Content Generators that extend familiar office tools facilitating the rapid development of learning material with the facility of automated assessment marking and tracking. MindFlash and Macromedia Breeze will be used for the purposes of this workshop. The assessment content of this workshop targets programming language issues, however the approach learned could be used in any other area where self-study and practice are relevant.

## ***Workshop Details***

The assessment to be developed will consist of the creation of effective multiple-choice questions that can be used for a Software Development module (abinitio course in Java programming language).

This workshop demonstrates the development of assessments using eLearning extensions for common office tools. Namely:

- Microsoft PowerPoint and Macromedia Breeze,
- Microsoft Word and MindFlash.

## ***Target Audience***

- Anybody interested in the rapid development of online learning content and automated assessment.
- People at all skill levels are welcome.
- The approach presented can be used in any other area where self-study and practice are relevant.

## ***Learning Outcomes***

By the end of the workshop you will be able to:

- create assessments that increase students' motivation,
- confidently use eLearning extensions to create assessments with common office tools.

## ***Student Motivation***

Programming is a skill best learned by practice, and students must be motivated to carry out self-directed study. Motivation is an abstract concept that is difficult to measure in any meaningful way [Bal77]. Historically, students have directed themselves towards a particular career path based on basic criteria such as the level of pay [Jen01]. The recent downturn in the IT sector, has for some computing students, removed that extrinsic motivation factor. [Kel83] defines motivation as multiplication of value (incentive value of success that makes sense to students) and expectancy (estimation of their chance of success - perceived probability of success):

$$\text{motivation} = \text{value} \times \text{expectancy}.$$

This theory is essential in the early stages of learning [Big03].

In the School of Informatics at NCI all of our students are exposed to Software Development modules. Unsurprisingly, concurring with the national trend, students tend to have difficulties and some of them experience problems even with basic programming language concepts and syntax. Programming is not taught at secondary school level, and the students are faced with a new approach to learning. Faculty on a continuous basis strive to increase students' motivation levels and render the learning experience enjoyable for students. The NCI studio classroom model lends itself to computer assisted and online assessment. Our aim is to increase the motivation of Software Development students by employing different assessment techniques. This highly automated assessment is successfully incorporated (pilot basis) into the every-day delivery of Software Development modules.

## ***Assessment***

The objective of any good assessment should be to improve students learning. Academic faculty should generate enthusiasm for student assessment amongst the student cohort. Assessment can be used as one of the most powerful ways of improving learning [Bla98], "simply by changing the assessment of your subject, you can affect the way students engage with the subject content" [IML].

**Computer Assisted Assessment (CAA)** technology offers many practical benefits including fast test delivery (automated marking) and distribution (results to lecturers and immediate feedback to student). The instant feedback is the paramount, [Sad89] reminds us that the feedback reflects three issues: desired goal, present position and a way to close the gap between the two, and the learning takes place only when the student understands all three issues. CAA not only automates routine tasks like marking multiple-choice questions, but can enrich individual student's learning experiences [Bro99]. However, CAA depends on the IT infrastructure (bandwidth and hardware) and staff specific skills. Initial development costs can be high and currently supported question formats are still quite limited.

It is also important that students can access tests at their convenience, such as using the Internet with standard browsers [Bon00].

**Continuous Assessment** is employed to motivate and reward students' continuous work. [Bea80] argues that continuous assessment introduces more strain on both students (preparation

for assessments) and lecturers (assessments' preparation and marking), however it is beneficial for highly anxious, less mature students who tend to benefit by constant pressure. However, CAA can reduce lecturers' workload. Intermittent marking of the continuous assessment work gives students an opportunity for improvement, since not everything that students do would be counted towards the final mark.

**Self-Assessment** is a means of reflection and it increases student's interaction with the learning material. In an era of lifelong learning, self-assessments are even more important, since mature learners need to be corrected as they learn [Rog92]. Self-assessments can reduce students' anxiety and prepare them for the marked assessments.

**Multiple-choice questions** (MCQ) are quite popular with lecturers but are often used only to recall factual information. When properly set, MCQs can be used for assessing comprehension, problem solving, and other higher order skills [All02]. MCQs are perfectly objective and reliable.

Assessment implemented in this workshop is MCQ based and used to test students' comprehension of the basic programming language constructs and syntax. CAA is used for implementation of continuous and self-assessment in NCI. The students are provided with CAA at the early stages of their learning. Great care is employed to ensure constructive feedback is provided for each question, which directs the student along the appropriate track. The assessments are delivered through standard web browsers or Microsoft Office tools and they are available online for self-study in the college or at home. Rapid development tools are used to reduce lecturers' workload.

### ***Common Office Tools Extensions***

A recent survey [How03] identifies Microsoft PowerPoint as being the second most-popular authoring tool.

There are a number of tools developed to extend the functionality of Microsoft Office tools incorporating eLearning features currently available on the market. These extensions vary in complexity - some extensions add more engaging content formats (animated agents, audio and video) and streaming [AcuStudio, Apreso]. Other tools generate media-rich online courses with automated assessment and tracking. This workshop introduces two popular extensions.

- Mindflash (<http://www.mindflash.com/pages/home.asp>) can be used for creating, offering and managing training courses online. The tool transforms PowerPoint files into engaging web shows with animations and audio narration. Microsoft Word is used to generate assessments.
- Macromedia Breeze (<http://www.macromedia.com/software/breeze/>) is a cost effective rapid development tool [Ber03] suitable for people at all skill levels. Macromedia Breeze and PowerPoint provide an easy five-step procedure for implementing quizzes and surveys in MCQ form. Created (self)assessment is delivered on the web as part of a Microsoft PowerPoint presentation.

The aforementioned tools provide tracking and analysis, furthermore the assessment features are housed in a central library and can be easily accessed and reused. However, the use of these features is out of the scope of this workshop.

### ***Conclusion***

It has become evident that computing course students' motivation has been on the decline. Twenty first century lecturers are swamped with setting and marking different forms of

assessment. A possible solution for this problem can be to extend familiar office tools with learning content generators to allow for the rapid development of online assessment. MindFlash and Macromedia Breeze are used to demonstrate this approach.

## **References**

[AcuStudio] (<http://www.aculearn.com/html/acustudio.htm> [viewed 2 April 2004]) transforms standard PowerPoint slides into interactive, media-rich presentations with video and audio capabilities for on-demand delivery over the web.

[All02] S.M. Alessi, S.R. Trollip (2001) *Multimedia for Learning. Methods and Development*. Allyn and Bacon, Boston, MA.

[Apreso] (<http://www.apreso.com/> [viewed 2 April 2004]) creates fully synchronized, web-based rich media presentations from standard Microsoft® PowerPoint® presentations. No other functionality is supported.

[Bal77] S. Ball (1977) (ed.) *Motivation in Education*. Academic Press.

[Bea80] R. Beard, I.J. Senior (1980) "Motivating Students" Routledge and Kegan Paul Ltd., London.

[Ber03] J. Bersin, (2003) *The Four Types of E-Learning: When should you use PowerPoint or Macromedia Breeze?*, Bersin & Associates. [viewed 2 April 2004]  
[http://www.bersin.com/tips\\_techniques/Breeze2.htm](http://www.bersin.com/tips_techniques/Breeze2.htm).

[Big03] J. Biggs (2003) *Teaching for Quality Learning at University (2<sup>nd</sup> Edition)*, SRHE and Open University Press, Buckingham.

[Bla98] P. Black, W. Dylan (1998) *Inside the Black Box – Raising Standards through Classroom Assessment*. King's College London School of Education.

[Bon00] S.W. Bonham, R.J. Beichner, A. Titus and L. Martin (2000) Education research using Web-based assessment systems. *Journal of Research on Computing in Education*, 33.

[Bro99] S. Brown, P. Race, and J. Bull, Eds. (1999) *Computer Assisted Assessment in Higher Education*, Kogan Page, London.

[How03] C. Howard, (2003) *Is PowerPoint an E-Learning Tool? Is Rapid E-Learning Here at Last?*, Bersin & Associates [http://www.bersin.com/tips\\_techniques/Breeze.htm](http://www.bersin.com/tips_techniques/Breeze.htm).

[IML] Assessment Institute for Interactive Media and Learning, University of Technology Sydney. [viewed 2 January 2004] <http://www.iml.uts.edu.au/assessment/index.html>

[Jen01] T. Jenkins, (2001) *The motivation of students of programming*, ACM SIGCSE Bulletin, Proceedings of the 6th annual conference on Innovation and technology in computer science education, United Kingdom, Volume 33 Issue 3, Canterbury.

[Kel83] J. M. Keller, (1983) *Motivational Design of Instruction*, In Charles M. Reigeluth (ed.), *Instructional-Design Theories and Models: An Overview of their Current Status*, PP 383- 464, Lawrence Erlbaum Associates.

[Rog92] J. Rogers (1992) *Adults Learning*, (3<sup>rd</sup> Edition) Open University Press, Milton Keynes.

[Sad89] R. Sadler (1989) *Formative assessment and the design of instructional systems*, *Instructional Science*, 18.