

The Use of Technology to Meet the
Challenges of Increased Demand and
Availability of a Learning Development
Service

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Dr. Tamara O'Connor
Mark Matthews

Abstract

The Learning Support and Development service in Trinity College Dublin faces many challenges working with students, the foremost of which is how dealing with increased student demand on our services. The main issues involve providing alternatives for students who have busy schedules and can not make it to workshops, for students who are located off-campus and for part-time and evening students.

In an effort to address this issue we are looking at the use of technology to provide just-in-time support to students when and where they need it and in a format of their choosing. Recently a concerted drive was initiated to provide alternative resources to students in keeping with the way students seek support and suited to their styles of working and learning.

This paper reviews the development and implementation of two new services: a prototype interactive workshop on time management and an interactive dialogue with an educational psychologist on techniques for dealing with exam stress. Initial findings on how students use these supports are described.

A key goal in this research is to identify the main challenges of extending our service: how to measure its impact; determining students' preferred means of receiving support; and how to design technological tools that meet students' needs in an engaging manner.

Keywords: Learning Support, Learning Development, Educational Technology, Student Engagement, Retention, Access, Usability

Introduction

Trinity College Dublin's Learning Support Development Service aims to provide support to undergraduate and post-graduate students to help them achieve their academic potential. Our service faces many challenges in today's higher education environment: increased numbers of students, diversity and expectations for performance. Higher education has also experienced decreased funding levels and increased student to staff ratios (Higher Education Authority, 2004; OECD, 2004). Currently Ireland has no undergraduate student fees creating further pressure and competition for funds.

In addition to these general challenges there are some specific to the nature of our work. We primarily deliver services via workshops, either centrally or via departments, and individual consultations. We have also had some success in embedding support for learning development within courses. Our service also makes many of the materials and resources available on our website. However, we often get feedback from students that they are not able to avail of workshops or consultations as they are attending classes, working, are located off-campus or are evening students.

Recently we have increased the number of workshops offered due to increased demand. Our 1-to-1 learning support sessions are for individual students to discuss their personal learning needs are also popular and we have increased their number. Whilst these sessions are very effective for the individual students, they are extremely resource intensive.

The key issue is how to expand the availability, access and convenience of our service to meet the demands and needs of today's student, our primary mission, in terms of the development of learning skills and support for student learning. With 2.4 staff members and a college population of 15,000+ we needed to find an alternative to traditional face-to-face delivery and in a way that is in keeping with the way students seek support and their styles of working and learning. We decided to more actively engage in the use of emerging technologies and e-learning to meet these challenges and student needs.

This paper focuses on the initial resources our service has developed using this approach. First we present the background rationale followed by a description of the development and implementation of these projects. We then outline research on the need to evaluate usability goals alongside the effectiveness of this approach. Finally, we discuss how we plan to use student feedback to enhance current resources, further research and future developments.

Rationale

Our service is addressing issues raised in the previous section by using technology to provide learning development support. There are several advantages to this approach. Many students are knowledgeable about technology. It is hoped that this will empower them to choose when, where and in what medium they receive learning support.

Furthermore, it allows for variation in the type of support based on their preferences. For students who can not plan in advance to attend a workshop or make a 1-to-1 meeting, technology might provide just-in-time support. Our goal is to provide consistent online materials that allow students to choose what medium to view the materials in and to make best use of service resources.

Students "have never known a world without personal access to information technologies, often take them for granted and integrate them seamlessly into their daily lives" (Caruso & Salaway, 2007, p. 1). While there exists no figures for student use of technology in our college, a recent survey would indicate that it is a student-centred medium and is becoming more prevalent (Salaway & Caruso, 2007). This study covered 103 educational institutions in the US over three years. It illustrates that the ownership of desktop computers, laptops and iPods is quite high. While desktop ownership is decreasing, the ownership of laptops and iPods is increasing. The mean hours per week students spend on online activities, across all faculties, was 18 hours indicating that students are already using their personal technology for coursework.

The above report indicates that the way students work is changing. Our service aims to support the way students learn and work at present. The two projects described in this paper are part of a larger effort to provide students with the ability to choose in what format they view support materials – text, video, audio and interactive workshops.

The way students learn varies (Hartley, 1998; Honey & Mumford, 1986; Vermunt & Vermetten, 2004), as do the types of media and resources they use to support their learning. Research suggests that students can learn more effectively when instruction is adapted to the way they learn (Rasmussen, 1988).

Emerging technologies allow a learner to have more control over the type of support for learning; one that suits their preferences and needs (e.g. podcasts, video clips). In addition they provide more interactive and collaborative opportunities (Garrison & Vaughan, 2008) than a static web presence – aspects that also support the way students learn.

Often students do not plan their college work significantly in advance of deadlines. A proportion of students need just-in-time support. Therefore some students may need 'just-in-time' support. These students may not be sufficiently organized to attend our workshops or to book an individual session. The use of technology could provide support materials that students can "dip" into when needed.

Technology has the potential to provide the student with more control over the pace they learn. It also enables them to navigate to the specific topic that they need help with and explore it in as much detail as required. For example, when writing an essay a student might want

a strategy for how to structure an essay. Our service aims to provide materials that such a student could call up to support this and other tasks.

There are potential benefits to our service in using technology to support students. By providing online materials that meet the way students work, it could free up more of our educational psychologists' time to work on other tasks and systemic issues. By monitoring the use of these online materials, the service may be able to be more sensitive to students' needs. While this monitoring would not take any extra student time, it could provide a more detailed means to improving our online materials by assessing what elements students find helpful and what elements they do not use

Development

This section presents the development of two new tools: a prototype interactive workshop on time management and an interactive dialogue with an educational psychologist on techniques for dealing with exam stress. These tools explore new ways to deliver our service.

New technology is often developed without consideration of the user's needs, context and ability (Bevan, 1999). Software which does not consider these issues will most likely result in poor usability, less productivity, less engagement and less acceptance by end users of the tool (Gulliksen et al., 2003). Most educational software focuses on evaluating the learning outcomes of the software without evaluating usability, but "usability is a pre-requisite for learning" (Brukman &

Bandlow, 2003, p. 435). Usability evaluation needs to precede the evaluation of learning outcomes: "If students can't use the learning hardware or software, they certainly won't learn through its use" (Brukman & Bandlow, 2003, p. 435). Research suggests that perceived advantage of the tool and its compatibility with students' experiences are related to their use of e-learning technologies (Liao & Lu, 2008).

Our service has identified the following requirements when considering the implementation of new technology:

- accessible to as many students as possible
- meets students' learning needs
- addresses students' working practices
- easy to use by students and staff members of the service
- engaging to use.
- measurable, both explicitly through online feedback and implicitly by monitoring use.

Get Organized – online workshop

The first project our service worked on was 'Get Organized', an online interactive version of a face-to-face workshop helping students to organize their work practice at the start of the academic year. It focuses particularly on time management and developing ways to cope with workloads. Time management and organization are key skills for success in university. These workshops are always popular and many of the students we see individually present with time management and procrastination issues. Furthermore, academic staff have identified it as an area where students need help.



Figure 1 Get Organized online audio workshop

This online workshop was developed using a commercially available e-learning tool called Articulate Presenter and Articulate Engage. These tools allowed the educational psychologist to add narration and interactive elements for her workshop slides. The existing Powerpoint slides provided a skeleton structure, scripts were prepared and voiceovers were recorded. We also intend to include an audio file of student discussion from a face-to-face workshop around time management issues – an aspect that would typically be unavailable from an online workshop. The result is the student ‘attends’ the workshop but at their own pace with opportunities to practice and explore the material.

At the moment students access the ‘Get Organized’ workshop through the service’s website. They can navigate to the areas of most interest. Related documents are available which can be downloaded if they wish to go into more detail. When students complete the workshop, they

are presented with a one page questionnaire so they can give feedback.

Examinator– online video workshop

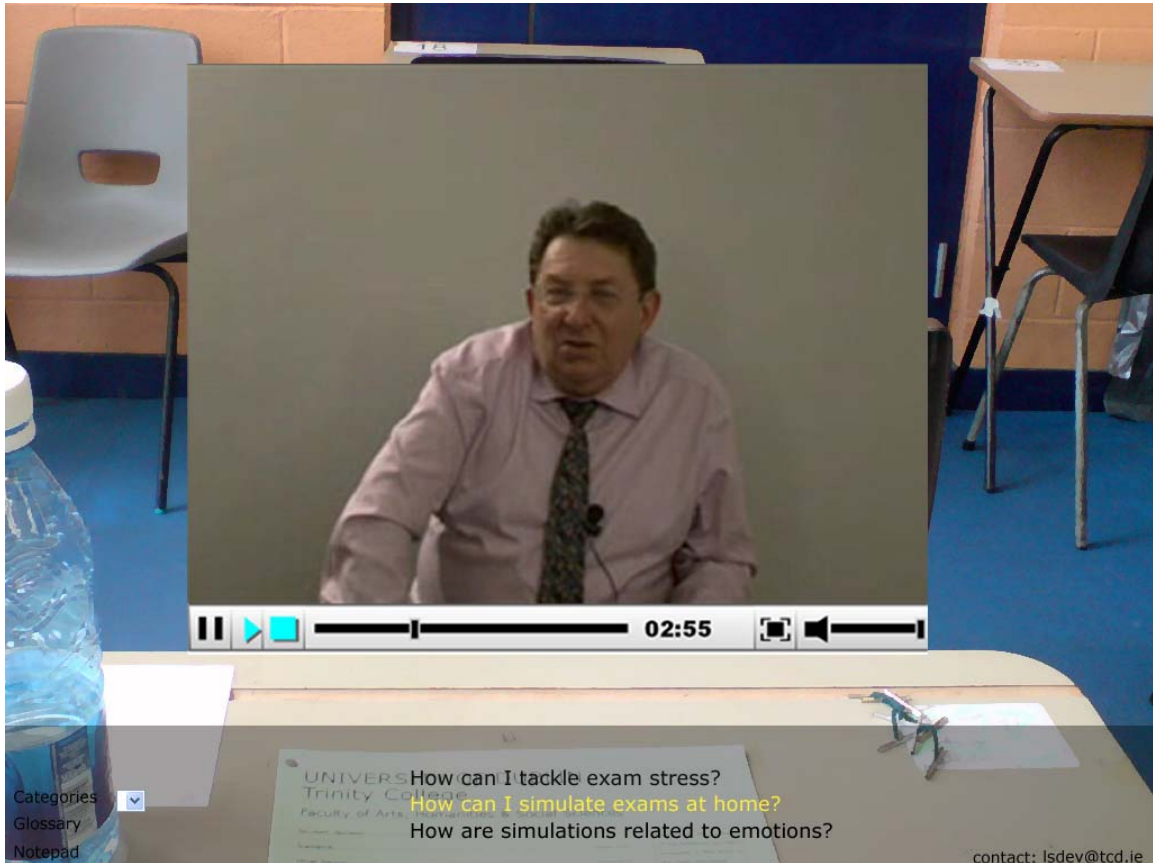


Figure 2 Examinator - interactive video dialogue with Dr. Lumsden

The second tool aims to provide students with techniques to improve their exam performance and deal with exam anxiety. Our service receives many requests for exam support close to exam times. The demand is such that it is very difficult to sufficiently meet all requests. In collaboration with Trinity College Dublin Department of Computer Science, we decided to build an interactive video conversation with one of our educational psychologists, Dr. Laurie Lumsden. The intention was to simulate an individual session based around Exam Performance.

The design of the tool was based on Dr. Lumsden's experience delivering exam support workshops and individual sessions. His workshop notes were used to create an initial structure. As an interactive dialogue, it was important to develop a detailed web of interconnections between dialogue elements. These were developed in conjunction with two computer scientists. A significant amount of time was put into writing the dialogue for this and how to best design the connections between dialogue elements. Once this was complete, two days were spent shooting video clips. Finally, the tool was put together and is now under evaluation.

Students access the exam performance tool from our website. They can login using their student computer logins. The benefit of the interactive dialogue is that students can ask the questions that are most relevant to their needs, and in this way direct the conversation according to areas that want to work on. They can also make notes as they go along, using an online notebook. Once they have completed using the tool, they are directed to a one page questionnaire.

Evaluation

In order to evaluate if these tools are effective, several stages of evaluation have been planned. They include:

- Discussions with team members about design decisions
- Usability trials with staff (subject-matter experts)
- Usability trials with students using observation and interviews
- Online live trials
- Monitoring of use

Initial findings

We are still in the process of gathering and analyzing the feedback received via the previously described methods. These will be presented and discussed at the symposium.

Conclusion

We believe the use of technology will help our learning development service meet the challenges of today. We intend to use the findings from evaluations to improve existing tools and resources. We also plan to extend our services in a variety of media and subjects to meet student needs. These will include:

- More workshops made available at times of year when they are needed
- Comprehensive online support of our face-to-face services
- More student involvement at earlier stage in development of materials
- Exam Stress: Online Exam Simulator

Our service has taken its first steps in an overall strategy to provide comprehensive support through technology.

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