

MANAGING THE MULTITUDES: MAKING SENSE WITHIN THE PLETHORA OF INTEGRATED FLEXIBLE LEARNING ENVIRONMENTS

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Abstract

The project management role is becoming more prominent in today's flexible learning design context. Project managers from an educational background can therefore neither afford to follow a camera-shy, behind-the-scenes management style, nor to be ill-prepared for tasks such as identifying project goals, managing work and task sequences, budgeting, assessing risks and ensuring quality.

This paper will explore the generic roles and tasks of the project manager, as applied to the context of integrated flexible learning environments within an adapted ADDIE model. Both authors are employed as project managers within this environment at their current institutions, and will draw and reflect on their current practices, also comparing notes within their different organisational contexts.

BACKGROUND

While lecturers are writing their online content, instructional designers are drawing their storyboards, and graphic designers are creating their artwork, there is an educational project manager who is trying to hold together all the reins and to reap the benefits of effective project management, namely: 1) getting things done on time and within budget, 2) minimising development time, 3) reducing risk and 4) using resources effectively. (Adapted from Harvard Business Essentials' Managing Projects Small and Large (Luecke, 2004:xii).)

As learning institutions are enhancing their learning materials on an ever increasing basis, the project management role is becoming more prominent in today's flexible learning design context. In accordance with the contemporary tendency of diffusing project management techniques "from their origins in civil engineering, construction and the defense industry to many other fields" (Luecke, 2004:xiii), the project manager's role incorporates a range of disciplines other than traditional educational methods.

The role of the educational project manager resembles that of project manager rather than instructional designer. Project managers in this type of environment can therefore not afford to be ill-prepared for tasks such as identifying project goals, managing work and task sequences, budgeting, assessing risks and ensuring quality.

This paper will explore the generic roles and tasks of the project manager, as applied within the context of integrated flexible learning environments. Both authors are employed as project managers within this environment at their current institutions, and will draw and reflect on their current practices, while also comparing notes within the different organisational contexts.

PROJECT MANAGEMENT WITHIN THE INTEGRATED FLEXIBLE LEARNING ENVIRONMENT

Integrated, flexible learning environments and the modern student

Students of today are experienced in an online, medium-rich global village of interconnectedness where the sky may be the limit. They enter their web-based learning environments with similar expectations. Hence modern learning materials vary from the traditional medium of learning guides to the interactive learning activity CDs, audio CDs, course material on video/DVD, course websites on learning management systems (LMSs) and the Internet. The incorporation of new technologies such as personal digital assistants (PDAs) and cellphones as tools further facilitate the teaching and learning process. Students also want the flexibility to study by means of the mode of delivery most suitable to their circumstances, be it on campus, by means of distance education or a mixed mode of delivery. Integrated, flexible learning environments seem to be the answer to accommodate a diverse and multicultural student population with various learning styles (Ally, 2006).

It is expected of higher education institutions to provide this type of flexibility to their learners within the parameters of the institution's vision and mission. Both the University of Johannesburg (UJ) and the Open Universities Australia (OUA) cater for the needs of the modern higher education student by means of their respective modes of delivery and flexible learning material packages.

During the last ten years, the Internet has fundamentally altered the practice of distance teaching and learning (Ally, 2006). There is an ongoing debate about whether it is the use of a particular delivery technology or the design of the instruction that improves learning (Kirschner, Sweller & Clark, 2006). "Doing it right" means that online learning materials must be properly designed with the learners and learning in focus, and that adequate support must be provided (Dick & Cary, 1996; Ally, 2006).

Cognitivists encourage learners to use metacognitive skills to help in the learning process (Meyer, 1998). Metacognition is a learner's ability to be aware of his or her cognitive capabilities and to use these capabilities to learn. When learning online, learners should be given the opportunity to reflect on what they are learning, collaborate with other learners, and to check their progress.

Learners should construct their own knowledge rather than accepting that given by the instructor. Knowledge construction is facilitated by good interactive online instruction, since the students have to take the initiative to learn and to interact with other students and the instructor, and because the learning agenda is controlled by the student (Murphy & Cifuentes, 2001). Consequently, online learning materials should be designed in small coherent segments, so that they can be redesigned for different learners and different contexts (Merrill, 2002). Finally, online learning needs to be increasingly diverse to respond to different learning cultures, styles and motivations (Ally, 2006).

This debate on the use of a particular delivery technology versus the instructional design of learning programmes will most certainly continue for years to come, but one certain way to ensure best practice in flexible learning and teaching, is the **integrated teaching and learning approach**. Regardless of the mode of delivery, learning materials, technologies and teaching methodologies contributing to the nature of any specific learning environment, true learning will only take place if each of these respective components is deliberately designed and implemented to work in conjunction with the other components towards enhancing the learning environment, achieving the learning outcomes and accommodating the learner.

Two crucial functions of the project manager in an integrated, flexible learning environment are implied above, namely to 1) see to it that the use of the different educational tools is properly planned, thus in an integrated manner, which will ensure that each tool is used for what it is best for and 2) incorporate the support functions applicable to the learning and teaching environment into the loop of being project managed.

Defining a project

Prior to the management of any project in integrated flexible learning environments as described above, the term 'project' should be clearly defined. There needs to be a common understanding amongst all team members in the design, development, support and administration sections of what exactly is understood by a project.

In the field of project management there are varying definitions of a project, but in short it refers to a task(s) that need(s) to be carried out by two or more role players within a certain period of time in order to achieve a specific outcome. Project management according to Heldman (2003:13) is defined as a process of applying skills, knowledge and established project management tools and techniques to your project to produce the best possible results. Bilton (2007) observes that teams will be more effective if they work to a brief and if they retain some of the organisational memory of previous projects. An effective project manager can help steer the project team on this course.

In this paper the scenarios described at both the UJ and the OUA refer to many support, maintenance and even operational management activities surrounding the analysis, design, development, implementation and evaluation of integrated flexible learning materials (in line with the so-called ADDIE model discussed under the section *Organisational Context: A Cross-comparison*). Within the varying contexts of the two organisations, these ongoing activities – as also outlined in the different sections on the two universities later in this paper – clearly resort within the parameters of what is defined as a project and are understood by all role players as being part and parcel of the process of project management as dealt with by the two authors.

Project management as a process

Sound project management practices will ensure that the team is headed in the right direction (Heldman, 2003). Usually, the goals and scope of flexible delivery learning packages are well defined.

Or are they? Do we really know how long it will take to make the video clip? Who will be involved in the process? How much money it will cost? How multimedia and technology will add value to the learning experience in the specific learning environment and how these elements will be integrated in the learning package?

Without a predefined scope and plan, a project may nose-dive and not reach its completion within the set timeframe. To help the educational project manager stay on track with projects, the following generic **stages** of project management form an integral part of the daily management of projects:

1. **Define the project goals:** determine the major goals of the project, and assign the organisation's resources to the project.
2. **Break down the project activities:** define the milestones and deliverables, write the scope and budget, and develop a project schedule.
3. **Plan and acquire resources:** determine special skills and resources needed to accomplish project tasks.
4. **Assess risk:** determine constraints and risks associated with completing the project.
5. **Budgeting:** calculate the project costs and related financial implications.
6. **Develop the project plan:** select and prioritise project tasks and activities and assign roles and tasks to project members against a set amount of deliverables.
7. **Execute the project:** monitor and manage the execution of the deliverables and milestones against the time framework.
8. **Quality assurance and evaluation:** assess and evaluate the project outcomes against the project goals.
9. **Evaluation:** assess the overall performance of the project team.

The different stages of project management as listed above, create the parameters for the two project managers of the respective institutions to manage within their environments. The implementation in their differing organisational contexts will be outlined within the following section.

THE ORGANISATIONAL CONTEXT

University of Johannesburg (UJ)

The University of Johannesburg (UJ) is a South African university that offers a mix of vocational and academic programmes to over 40 000 students on four different campuses, with the priority of focussing on the Gauteng city regions. Its vision for these programmes is to advance freedom, democracy, equality and human dignity as high ideals of humanity through distinguished scholarship, **excellence in teaching**, reputable research and innovation, and putting intellectual capital to work. In its mission the UJ commits itself to **quality education** and three of its ten strategic goals are to promote excellence in teaching and learning, to cultivate a culture of transformation and to offer the preferred student experience.

Management realised a few years ago already that in order to live up to the above, moving with the times is of the utmost importance, and that making technology an integrated part of the University's teaching and learning approach, is an absolute must. Therefore, technology-assisted learning (TAL) is dealt with as a core component of the UJ's teaching and learning strategy, as clearly stated by Prof Derek van der Merwe, Pro-Vice-Chancellor and Vice-Principal of the UJ:

At the University of Johannesburg, technology-assisted learning, in our estimation, is a core component of how we train our students to become independent thinkers, to work in a team, to be able to connect with others elsewhere in the world, and to be competitive at the same time (Freeman, 2008).

Within the UJ, it is The Centre for Technology Assisted Learning's (CenTAL's) brief to make the integrated approach to learning, teaching and assessment a reality. This centralised approach determines that different modes of delivery, including educational technologies, are to be used in an integrated manner to enhance the student's learning experience. In order to facilitate and manage this process, the following functions are operational within the Centre: instructional design, instructional development, audio and video recording and conferencing, quality care of learning material, professional development of lecturers for the effective use of TAL, evaluation and research, system and client support, system administration and project management.

Since January 2003 CenTAL has been involved, varying from a lesser to larger extent, in the design and development of about 1 000 integrated learning material packages (\pm 70-120 packages per semester). As the Centre gradually gained more experience in the use of the UJ's learning management system (LMS) – Blackboard, named Edulink at the UJ – and the training of end-users in effectively using it, lecturers became less reluctant and more open-minded and excited about the endless possibilities of integrating the use of the various LMS functionalities into the learning activities for their respective modules. This led to an increased use of the LMS. The 2007 statistics indicate that 64 of the 102 departments in UJ made use of Edulink, which resulted in 937 modules being activated and about 20 000 students (142 257 student seats) actively participating on Edulink in 2007.

Due to this growth, CenTAL's instructional designers (IDs) increasingly became involved in assisting lecturers and students in using the system, leaving them with

not enough time at all to develop learning guides. As a result, CenTAL slowly but surely moved away from a **learning-guide focused development model** to a **staff-development focused model** with the view to empower users for the effective and optimised use of Edulink. Since this shift in emphasis, lecturers are responsible for the updating and development of learning guides themselves. CenTAL does, however, assist with the coordination of the development and printing of learning guides (up to the compilation of the master copies phase, but not including the reproduction and distribution of learning materials). CenTAL retains the responsibility for the analysis, planning and design of existing and new learning environments in collaboration with lecturers. Furthermore, the provision of learning guide templates and checklists ensure that the content of the learning guides adheres to the basic requirements according to UJ policy and Higher Education Quality Committee (HEQC) guidelines. CenTAL also supports lecturers with the design and development of interactive CDs or DVDs, as well as the value-added integration of innovative learning technologies such as professional digital assistants (PDAs) into the learning environment.

Within this context, the CenTAL project manager's job purpose is to manage projects for the design, development and delivery of learning material in a technology-assisted learning environment, which might include all or a combination of the following:

- i) A learning guide
- ii) An interactive CD-ROM or DVD with a variety of activities like voice-overs, document camera work, video clips and case studies to provide a richer learning experience and allow students the opportunity to improve their skills and test their understanding of the work
- iii) An electronic learning management system (LMS), Blackboard, but named Edulink at the UJ, with a variety of functionalities to choose from
- iv) New educational technologies, such as Personal Digital Assistants (PDAs)

This is achieved by performing the following key job outcomes:

- i) Integrating the activities of all role players to ensure timeous delivery of high quality learning material (only up to the stage of preparing master copies for printing, which then becomes the responsibility of General Administration).
- ii) Monitoring the progress of various projects with respect to time and resources, and submitting progress reports.
- iii) Designing and compilation of policy documents and guidelines regarding the processes and procedures within the technology-assisted learning environment.
- iv) Liaising and following up with all relevant role players to ensure a thorough understanding of their progress and activities in the various projects.
- v) Contracting in external role players to assist with specialised services for projects when required.
- vi) Facilitating project reviews and evaluations with the view to improvements for the next cycle.
- vii) Compiling year-end reports and statistical summaries of the projects conducted throughout the year.
- viii) Assisting with and overseeing quality care of the learning materials.

- ix) Compiling lists of projects for tender purposes and registering all internal projects.

Carrying out such a variety of activities – involving many staff members internally and externally and lecturers on different campuses, as well as an additional number of role players – which have to keep up with the demand of both lecturers and students, and having a direct impact on the teaching and learning activities and environments of lecturers and large numbers of students alike, strongly reminds of the demands of the hectic business world, as described in Luecke (2004:xi):

Rapid change and the pressures of intense competition have caused more and more organisational work to become project work. Change in technology and customer demand has made work less routine and less repeatable – that is, it's become more unique and less approachable by business departments that are geared to day-to-day routines. At the same time, competitive pressures have forced enterprises to do their work more quickly.

Situations like the above obviously raise concerns regarding quality, as clearly voiced in the welcome note and the executive summary of the white paper ***Unlocking the Global Education Imperative – Core Challenges and Critical Responses*** compiled by Gordon Freeman, Vice-President: Education Strategy, Blackboard Inc:

It is clear that the pressures of the information age are very real, and that they cause nations and institutions to rethink how to provide **high quality education to exploding numbers of students.**

The solution to this is project management within the learning environment, which is “an important tool of modern management, particularly for big jobs, unique jobs, and jobs that require many skills” (Luecke, 2004:xi).

Working within certain frameworks, and having supporting and customised policies, procedures, project documentation and communication material in place, is the remedy for the eroding effect that unmanaged plethora within learning environments might have on quality.

Open Universities Australia (OUA)

Open Universities Australia (OUA) is a consortium of seven Australian universities that was formed by the Australian Commonwealth (Federal) Government as Open Learning Australia during 1993. The main aim of the OUA is to provide distance-delivered open access to tertiary study, with the commitment to make higher education accessible. Although there are 14 provider universities responsible for providing the web-based learning unit offerings, the current shareholders are: Curtin University of Technology (WA); Griffith University (QLD); Macquarie University (NSW); Monash University (VIC); Royal Melbourne Institute of Technology (VIC); Swinburne University (VIC) and University of South Australia (SA).

The largest segment of the OUA market is defined as adult learners ranging from average ages 25-50 years, although there are also students enrolled who are well into their sixties. Most students are full-time or part-time employed, and would find it difficult to attend on-campus classes.

Respondents partaking in a recent online survey, Student and Portal Member Survey conducted by London (2004), indicated five different motivations for studying by means of distance learning via Open Universities Australia, as set out in Table 1:

Motivation	% Respondents
To progress in my current career	51%
To gain new skills	50%
For personal interest, stimulation	49%
To help shift to a new career	37%
To get into the workforce	14%

Table 1: Student motivation (London, 2004)

The emphasis on career progress (51%) and the acquisition of new skills (50%) implies that learning materials need to be responsive to industry demands. Learning materials need to provide authentic and contextual assessment and provide opportunities for collaboration in a learner-centred environment. Learning materials also need to make use of innovative technologies in a sound pedagogical way.

To ensure the quality, instructional standard and integrity of the learning materials, **Academic Products and Services** is responsible for the web-based development of new and upgraded program offerings. The section works in partnership with providers involved in educational teaching and learning development initiatives, offering the following services:

- Consulting with OUA providers on educational design and web-based development of new and upgraded program offerings.
- Providing policy, standards and specifications for appropriate web-based delivery of OUA program offerings, based on consultation with external and internal stakeholders.
- Ensuring that OUA program offerings and units are consistent with the international standards and legal requirements for online teaching and learning.
- Conducting continuous review and evaluation processes to ensure that the design, development and implementation of OUA program offerings are consistent with best practice in education teaching and learning design.

The design and delivery of the learning materials are executed by the various providers, while the quality assurance, budgeting and product delivery are monitored by OUA. The services are therefore decentralised and geographically dispersed, which sometimes give way to time, resource and quality constraints. In order to make this happen, it is essential that sound project management processes are in place to steer the successful design and development of the learning materials.

In the following section the design and development of the two organisational contexts will be compared within the framework of the ADDIE instructional design model.

ORGANISATIONAL CONTEXT: A CROSS-COMPARISON

A well-known framework used by both institutions to facilitate the design and development of material for the respective integrated flexible learning environments, is the ADDIE model. Kruse and Keil (2000) confirm that the instructional design of flexible delivery materials are often centred on the ADDIE model, which consists of the analysis, design, delivery, implementation and evaluation phases.

When compared with the stages of project management design (Heldman, 2003), the comparison can be tabled (Table 2) as follows:

Instructional design stages	Stages of project management
Analysis	1. Defining the project goals
	2. Breaking down the project activities
	3. Planning and acquiring resources
	4. Assessing risk
Design	5. Developing the project plan
	6. Budgeting
Development	7. Executing the project
Implementation	8. Quality assurance
Evaluation	9. Evaluation

Table 2: Comparison between different stages

All projects progress through five project management process groups, namely initiating, planning, executing, monitoring and controlling, and closing. This is also known as the *project life cycle*, into which the nine above-mentioned generic stages of project management are integrated.

The application of the project life cycle to the development of integrated flexible learning materials can be illustrated by the following table (Table 3).

Project life cycle of flexible learning materials	
Initiating	Identify subject or course to be developed. Start with an idea that is submitted for approval. Project approved after application of selection criteria.
Planning	Blueprint and template design approved.
Executing	Write content and develop website and multimedia materials.
Monitoring and controlling	Review and correction by technical experts, proofreaders and editors.
Closing	Final reviews, sign-off, printing and distribution.

Table 3: Project life cycle

Heldman (2003:22) also lists the following constraints that would impact on the project management of flexible learning materials:

- i) **Time** – Most projects operate under some deadline. This deadline determines the way project activities are scheduled and completed.
- ii) **Resources** – This may include people, equipment, materials and money.
- iii) **Quality** – This assures that the end product conforms to the requirements and product description that's defined during the planning process.

Bilton (2007:85) notes that constraints, whether externally imposed or internally devised, provide a necessary framework for creative activity. These boundaries provide a start and ending point for the creative work or project. Without this framework, the absolute freedom of creativity is both intoxicating and paralysing.

It is the role of the project manager to remind the team members of the constraints, and provide a framework for the creative work that will encourage rather than restrict the activities.

The design and development framework implemented by both project managers is that of the ADDIE model, with the project life cycle resulting as discussed above. However, in dynamic integrated flexible learning environments, there is no room for rigidity and unquestioning acceptance of any model (Dick & Carey, 1996; Merrill, 2002; Ally, 2006).

The integrative nature of this model that allows for the different phases (analyse, design, develop, implement and evaluate) to continuously flow backwards and forwards into each other – and *not* to be dealt with as different entities or separable phases – makes it a user-friendly model which can be used by educational project managers. This then helps to facilitate the union of the instructional design and development process with project management.

The implementation of this integrative ADDIE model has further been customised within the project-managed flexible learning environments of both CenTAL at the UJ and the Educational Design and Development Centre at OUA.

CenTAL implements an adapted version of the ADDIE instructional design model as a theoretical framework for creating, designing and developing integrated learning material packages. As previously mentioned, this model traditionally consists of the analysis, design, development, implementation and evaluation phases. CenTAL, however, added a continuous quality loop as illustrated below.

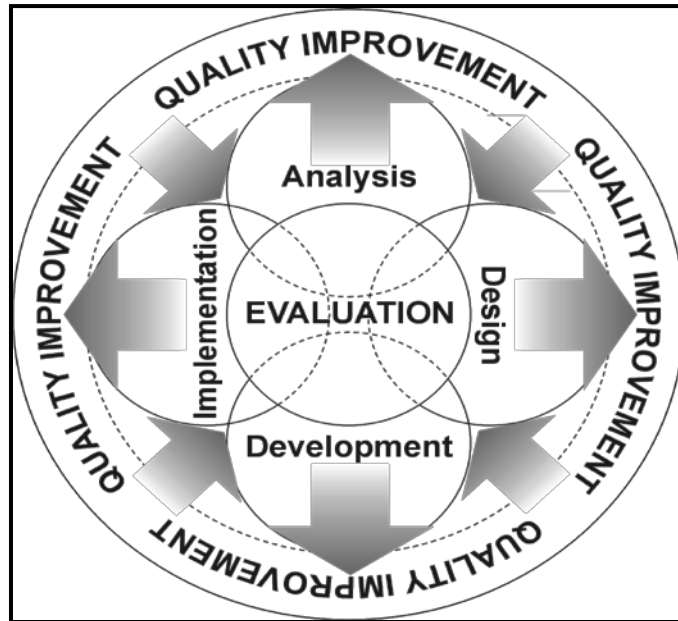


Figure 1: CentTAL adapted ADDIE instructional design model

This model was used by the project manager and Centre staff members to design a flow diagram and supporting policies and procedures for the design and development process for integrated learning material projects, which are used by the Centre's instructional designers and developers. Furthermore these documents also serve as a basis for other relevant staff members to facilitate the design and development of high quality learning materials and environments for the large number of on-campus students at the four different campuses of the University.

At OUA, however, the project manager's focus is on managing flexible learning materials development, ensuring milestones and deliverables for new units and assisting with overall product development. The design and development within the close parameters of the customised ADDIE model is mainly the responsibility of the flexible learning support team members at the various provider universities.

There are some similarities between the University of Johannesburg and Open Universities Australia in terms of the overall project management strategy, namely:

- Learner and learning focused development model
- Focus on staff development
- Formal quality assurance and evaluation processes

However, the following table summarises the differences in focus of the two project managers in their respective working contexts.

University of Johannesburg	Open Universities Australia
Lecturer support	
Centralised lecturer support	Decentralised lecturer support
Design and development	
Hands-on design and development of learning material packages and internally project managed	Learning material packages are designed and developed by the provider universities and externally project managed
CenTAL is responsible for facilitating the design and development of learning material packages	Provider universities are responsible for the design and development of learning material packages
Design and development – part of the project management process	Design and development – dealt with and project managed by the provider ID teams
Scale of project management	
Project management is applied on a much smaller, more focused scale, from as little as the involvement of two or three role players (e.g. the recording of voice snippets, which will be published on Edulink for students to download onto their MP3-players)	Project managed on a larger scale – much broader scope, dealing with different provider university teams
Budget	
The budget is less focused on by the project manager	Provider universities have to meet certain criteria to qualify for product development funding

Table 4: Differences in project management executions

Despite the different focuses, the respective sections or centres in the University of Johannesburg and the Open Universities of Australia thus function similarly with regard to working within the framework of the identified project management stages. The adapted ADDIE model and supporting policies, procedures and processes for the design and development of integrated flexible learning materials, is customised for the differing on-campus and distance education modes of delivery.

Using the adapted ADDIE model in conjunction with the stages of project management therefore provides a seamless delivery that covers both aspects of instructional design and project management.

SUMMARY AND CONCLUSION

Quality may suffer without the customised, committed and focused project management within the educational environments as discussed in this article. Operational managerial activities need to be supported by all the relevant project management tools and frameworks referred to due to the multiple and varying demands of designing, developing and supporting effective learning environments.

It is the role of the project manager to monitor and manage the transition between quality design and management when working within the area of flexible delivery materials development. Project management by means of the adapted ADDIE model with the important quality loop added to it, is therefore an irreplaceable quality assurance tool, greatly contributing to making sense and giving direction within the plethora of integrated flexible learning environments.

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