The rise of the learning manager: changing teacher education

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David Lynch
Learning Management: Transitioning Teachers to National and International Change

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# Table of Contents

**Chapter 1.** The Rise of the Learning Manager: Transitioning Teachers to National and International Change  
*Richard Smith, David Lynch and Bruce Allen Knight*  
1

**Chapter 2.** Australian Schooling: What Future?  
*David Lynch and Richard Smith*  
9

**Chapter 3.** What is Learning? Current Knowledge and Theories  
*Kim Nichols*  
21

**Chapter 4.** Entrepreneurial Professionalism and Learning Management  
*Clive Graham and Bruce Allen Knight*  
30

**Chapter 5.** Teaching Students with Special Needs  
*Bruce Allen Knight*  
37

**Chapter 6.** E-Learning: A Catalyst for a Futures Orientation  
*Paul O’Neill and Bruce Allen Knight*  
45

**Chapter 7.** Transdisciplinary Knowledge Production and Learning Management  
*Clive Graham and Richard Smith*  
58

**Chapter 8.** Building Resilience in Learning Managers  
*Cecily Knight*  
68

**Chapter 9.** The Design and Execution of Learning Experiences: The Learning Management Plan  
*David Lynch, Richard Smith and Tina Doe*  
78

**Chapter 10.** The Design and Execution of Learning Experiences: The Learning Experience Plan and the Unit of Work  
*David Lynch, Tina Doe and Richard Smith*  
109

**Chapter 11.** Portal Task: Know it and Do it!  
*Paul O’Neill, Bruce Allen Knight and David Lynch*  
140

**Bibliography**  
153

**Appendices**  
161
The Rise of the Learning Manager: Transitioning Teachers to National and International Change

Richard Smith, David Lynch and Bruce Allen Knight

Meet any group of people who work in the education industries and soon the conversation turns to issues such as the following:

- How are we going to deal with the social, economic, political and cultural challenges that face us daily in the form of students with different temperaments and needs, different parents, different expectations, a host of learning difficulties and an ageing workforce?

- How do we best organize and administer education provision for, on the one hand, these changes and on the other hand, the requirements of educational policy?

- How do we reconcile Australia values and lifestyles with a multitude of regional variations and different cultures and languages?

- How do we fulfil both the expectations of social justice in outcomes and opportunities and the demands for standards?

The fact is that education systems, at all levels, and in turn teachers, trainers, lecturers and education administrators are everywhere under pressure from social change. The pressures arise from the challenges presented by the inexorable movement to a knowledge-based society and globalization. They come from Australia’s engagement in the international arena both commercially and politically and from changes in the internal relationships and institutions of society as multiculturalism sorts itself out. They come also from the attempts of government at the state and national levels to coordinate not just emergent changes themselves but also the various initiatives taken by the states and the federal governments that replicate and overlap. They come from the clash of democratic and neo-liberal ideologies that pitch social good against the interests of the individual.

In these circumstances, ‘Education’ — the education industries — has a core role to play. Educators in schools, training venues and universities tend to eschew politics and have long believed that they are beyond the policy process, that they are automatically important. Today, the social and intellectual preconditions that enable policy breakthroughs, namely good education systems, are important policy matters that have consequential effects on pre-service teacher education, schools and their work forces and post-school education. It is important to understand the ways that national and state political, social and economic agendas are produced and the role that education policy with anticipated outcomes plays in them. Dealing with education at these levels opens opportunities to actively shape the production of policy outcomes rather than leaving it to the government agencies alone. As we understand it, pre-service teacher education is one such possibility to indicate how the dynamics of social change are intertwined with the production of new kinds of teachers — Learning Managers — who better fit the complexities of contemporary Australia.

However, an exclusive focus on Australian educational policy and its role in Australian social developments is no longer sufficient in a world where there are millions of people who have scant necessities, let alone access to knowledge that will assist to get them out of their predicament. The Learning Management concept and its associated practices, while
Australian-grown and culturally shaped, have the potential for influencing the pedagogical practices of the rest of the world. Learning Management intends that Learning Managers — teachers for the 21st Century — have the pedagogical capabilities to achieve desired learning outcomes in students. Such an outcome is both democratic and consonant with broader education policy goals.

Education and the research enterprise that accompanies it are bound to reflect past changes, the so-called ‘lag’ in educational policy-making. We can discern this tendency in the requirements of teacher registration agencies and in policy attempts to determine such things as ‘teacher standards’ and research indicators. There is nothing particularly wrong with drawing on the past and sung experience and lessons to focus on recurrent problems and issues. Cultural continuity is maintained in this way. However, such an approach provides little assurance that new problems and challenges will be met with new responses rather than ‘more of the same’ in the hope that ‘this time it might work’. Christensen put it this way:

I have a little vignette in The innovator's dilemma about how people were trying to fly in the Middle Ages by fabricating wings, strapping them onto their arms, jumping and flapping real hard. For centuries subsequent innovators framed the problem as: The guys who died just didn't flap hard enough. Yet it still never worked.

In short, it is not sufficient in a time of deep change to merely live by a set of taken-for-granted assumptions and their implications. As Nowotny points out, dealing with developments either by a generous supply of warnings, normative exhortations or well-meaning policy recommendations is insufficient.

Learning Management is a disruptive innovation. It intends to explore and develop alternative pre-service and in turn practicing teacher arrangements that respond to the needs of education systems. These constituencies include policy-makers, schools and other learning institutions, the teaching professions and above all, students and their communities who are marginalized without school and other education outcomes. Learning Management is about an alternative choice in the way in which ‘teaching’ gets done.

We think that the emphasis we place on ‘learning’ management is a core element of education system capability in the present circumstances and for some time to come. Our view is based on the recurrent educational research findings that in-school differences outweigh any other factor in the performance of either individual students or indeed institutions and that teacher intervention in student learning is a correlated with student success. How much teachers know and can do with students pedagogically really matters, quite independently of whatever else they might know and do. Yet much current teacher pre-service and in-service preparation and professional development assumes that all teachers know how to teach effectively so that all students achieve curriculum outcomes. In school education for example, parents expect teachers to be able to teach their child, judged by the child’s performance as a reader, writer, developing mathematician and so on. Focusing on the management of learning on the part of teachers so that students do achieve learning outcomes is hardly trivial.

However, in developing the concept of Learning Management, it is also necessary to achieve future, alternative outcomes compared to regular pre-service teacher education programs. To this end, the Learning Management concept implies and entails special relationships between schools, teachers, their employers and their communities. Graduates themselves need to be strongly oriented to the future and be able to undertake both small and larger scale change management. They need visions of what the education system could be like and tool-kits to engage in the change process as well as being expert in what is.

THE PURPOSE OF THIS BOOK

Our book then is about preparing a different type of teacher for the different era in which schools and society now operate. Our book is premised on the work of the ‘Learning Manager’ — the teacher construct for the 2000 epoch. In
writing this book we aim to engage the education profession, and the neophytes that seek to join them, in a strategy that ensures ‘no kid falls through the cracks’. This is a bold, and perhaps somewhat noble ambition, but the reality is, that it is the ‘teacher’ who makes the difference in the learning process and as Smith and Lynch contend, current teacher preparation paradigms are failing to prepare education graduates for the ‘changing circumstance’ that is upon us today.

This book builds on *The rise of the Learning Manager: Changing teacher education* by providing the student of Learning Management with a structured series of professional learnings. Each chapter therefore expands the concept of ‘Learning Management’.

The concept of ‘Learning Management’ provides an alternative to traditional discourses and conventional approaches that are synonymous with teachers, teaching and schooling. Smith and Moore follow Bourdieu and Passeron in acknowledging that the term ‘Learning Management’ is a ‘useful fiction’, an appropriate but arbitrary stylistic preference that cannot be deduced from any universal principle, whether physical, biological or spiritual, not being linked by any sort of internal relation to ‘the nature of things’ or any ‘human nature.

But, this useful fiction, — Learning Management — Smith and Moore argue is based on a coherent set of ideas about ‘design’. Design is what you do and not what you’ve done, according to Fletcher. Caplan argues that the design concept can be rendered as an artful arrangement of materials or circumstances into a planned form. Drawing on these meanings, ‘Learning Management’ is a coordinated course of action for achieving learning outcomes. It is best rendered in their view as ‘design with intent’. The concept implies a technical language, a tool kit of capacities to achieve desired outcomes. It is intertwined with instructional design theory and direct teaching rather than with learning theory or constructivism.

It follows then that the term ‘Learning Management’ means an emphasis on ‘the design of pedagogical strategies that achieve learning outcomes.’ The intent is that the Learning Management practitioner — the Learning Manager — is one who is able to achieve learning outcomes in learners and who is attuned to the changing nature of the economy in the 2000’s. The ‘design’ approach signals a change in the balance given to ‘curriculum development’ and ‘pedagogy’. It does not mean ‘either’ curriculum or pedagogy but it does imply a shift in the balance towards pedagogical practice and the science of learning. The emphasis is definitely on pedagogical strategies that, in turn, are derived from research on teaching as well as practical ‘on the job’ know-how under the guidance of expert mentors.

The term ‘Learning Manager’ is a transition from the teacher construct of the 1900’s epoch to the education practitioner that is appropriate for an emerging knowledge and creativity-based economy in the 2000 era. The global emergence of what is being called ‘Generation Z’ for example signals a new and different configuration of social relationships as it squares off against culturally different worldviews. Dealing with Generation Z in the kinds of education systems that characterise Australia will allow education systems and Learning Managers alike to formulate appropriate responses. As Wegner, an ICT Coordinator in a primary school in suburban Adelaide puts it:

What of the professionals charged with these students’ education? Can they be convinced of the need for personal change to keep pace with their students’ world? Are they even aware of the exponential changes taking place? How would they get started in their classrooms?

The content and commentary within this book provides the foundations for one such response.
NAVGATING AND UTILISING THIS BOOK

This book is a collection of key knowledge and embedded skills that underpin the work of Learning Manager. Each chapter has been designed to provide the developing Learning Manager with key underpinning knowledge, a series of structures learning tasks and a bank of Learning Management ‘tools’ and resources as the basis for a preparation program based on acquiring ‘Learning Manager capabilities’.

As Smith and Lynch contend the preparation of Learning Managers in the 2000 epoch context is one that is characterised by workplace ready and futures orientated learnings. ‘Workplace ready’ refers to the Learning Manager’s ability to operate successfully within the ‘characteristics of current schooling practice’. Authors, such as Stephenson, define capability in the workplace ready sense as having specialist knowledge and skills relevant to a specific context. At the time of writing, the predominant workplace context for graduate Learning Manager is that of a school: a reflection of how the education market is constructed in Australia circa 2007. Their employment is therefore most likely to be that of a ‘teacher’. Table 1.1 illustrates typical workplace-ready capabilities for graduate Learning Managers.

A futures orientation by contrast is a set of capabilities that enable the Learning Manager to engineer an alternate teaching/learning paradigm. A capability that enables the Learning Manager to bring to bear differing knowledge and skill sets so as to ensure the learning outcomes of all learners is maximised and commensurate to the changing profile of society that we detailed earlier.

Table 1.1 Workplace ready and futures orientated capabilities

<table>
<thead>
<tr>
<th>Typical Workplace Ready Capabilities</th>
<th>Typical Futures Orientation Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Curriculum planning for an age related cohort (P to 12 circumstance)</td>
<td>• ‘Cradle to grave’ learning (B-85 circumstance)</td>
</tr>
<tr>
<td>• Standardised policies and procedures to follow</td>
<td>• Learning design strategies based on individual learner profiles</td>
</tr>
<tr>
<td>• Teaching objectives to guide teacher actions</td>
<td>• Learning outcomes that articulate learner readiness for transition</td>
</tr>
<tr>
<td>• Teacher delivering content</td>
<td>• Learning experiences commensurate to the profile of learner need and circumstance;</td>
</tr>
<tr>
<td>• Lessons structured in the context of a school</td>
<td>• Multi-modal delivery methods</td>
</tr>
<tr>
<td>• Pencil/paper/text books/black-boards</td>
<td>• ICTs as part-and-parcel of learning strategies; Word processing, email, SMS, internet, e-boards, information banks</td>
</tr>
<tr>
<td>• Compliance, routines, traditions, standardisation</td>
<td>• Planned risk taking, situational analysis, courage, intuition, customisations</td>
</tr>
</tbody>
</table>

Smith and Lynch argue that by placing an emphasis on ‘the future’, three possibilities for Learning Managers emerge. First, a futures orientation prompts the Learning Manager to think of futures scenarios. Second, exploration of futures scenarios provides criteria for judging plans and corresponding implementation strategies for fit to the learner and their future circumstance. Third, a futures orientation allows the Learning Manager to imagine and manipulate possible conditions and outcomes: an opportunity to create a preferred future. Taken together these characteristics form the professional mindset that enables the Learning Manager to escape the confines that have become the traditions of teaching in most schools today and to generate exciting and different ideas for their learner charges and their learning future.

This book is chiefly concerned with the development of futures orientated Learning Manager capabilities. To achieve this broad goal the book presents ten fundamental knowledge sets through ten specific chapters. Each chapter focuses key underpinning knowledge to a series of defined ‘Learning Outcomes’ which are used jointly to frame the book and
your futures orientated learning. By engaging with this book and completing the readings and tasks within each chapter, you as a developing Learning Manager, will be able to:

- Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
  - Examine and generate scenarios for the future of education
  - Examine and locate socio-political impacts on education
  - Identify, generate and utilise innovative solutions that inform the practice of Learning Manager
- Apply the Learning Design framework
  - Utilise 8 Learning Management Questions (LMQ) as the organiser for a learning journey
  - Expand a Learning Management Plan (LMP) as an action plan to deliver a series of learning experiences
  - Utilise the concept of portal task to inform the outcomes of a learning program
- Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Managers
  - Learning Manager
  - Transdisciplinarity
  - Learning
  - Special needs provision
  - Learning Manager resilience
  - E-learning
  - Evidence based strategies
  - Entrepreneurial professionalism
  - Portal tasks
  - Learning design
  - Dimensions of Learning (DoL)

Figure 1.1 illustrates the role each knowledge set plays with respect to building Learning Manager capability. On the outer spokes of the circular diagram are seven key knowledge areas. These knowledge areas provide seven foundation understandings with respect to; the concept of learning; using entrepreneurial activity; being resilient; attending to the special needs of learners; transdisciplinarity; scenarios for the future and utilising information communication technologies. While not conclusive these seven knowledge areas are fundamental to a Learning Manager understanding the context and circumstance of their futures orientated activities. The second tier of the circle comprises two key Learning Manager skill sets; Learning design and portal tasking. These two elements interact with each other to provide the Learning Manager with strategies that bring to bear the essential considerations for achieving learning outcomes in learners: a set of tools for working as a Learning Manager.

In Chapter 2, ‘Australian Schools: What Future?’, David Lynch and Richard Smith examine the notion of schooling from the perspective of a changed socio-economic circumstance and in a context of there being a reluctance on behalf of teachers and schooling systems to embrace commensurate change. The centrepiece of the chapter is the notion that schooling has changed little since its nineteenth century naissance. This leads the authors to contend that it is vulnerable to rapid historical change and an emerging education market. Given this circumstance the authors pose a number of scenarios that examine the future of schooling in its current change malaise and in doing such present students of Learning Management with a ‘future to ponder’.

Chapter 3 ‘What is Learning? Current Knowledge and Theories’ examines the concept of learning by discussing a new paradigm (new way of thinking) in learning called the ‘learning sciences’. Kim Nichols chapter outlines how the learning sciences have emerged from new scientific understandings about the brain and how these new ideas enrich studies of learning and so have the potential to inform classroom teaching.
The exploration of an entrepreneurial approach to education and the need to view it as more than as it has been traditionally perceived is the theme of Chapter 4. Clive Graham and Bruce Knight challenge Learning Managers to respond to change through the principle of continuous improvement.

Figure 1.1 Knowledge sets

Discussions on the principles of market positioning, strategic orientation are encouraged in an entrepreneurial culture. The authors argue these notions fit comfortably with the work required of Learning Managers in the 2000 epoch.

In Chapter 5 Bruce Knight reflects on the regular classroom and the challenges for Learning Managers in meeting students’ academic needs. Sections discussed include what are special needs, students’ rights, school policy and useful classroom practices in dealing with the complexities of learners.

E-learning as a catalyst for a futures orientation is the theme of Chapter 6 by Paul O’Neill and Bruce Knight. This chapter investigates the realms that Information Communication Technologies (ICT) can bring to learning and how Learning Managers can harness this potential when they design learning programs. Limitations of the uptake of ICT and useful resources are also discussed.

Transdisciplinary knowledge production and its relationship to Learning Management are outlined in Chapter 7 by Clive Graham and Richard Smith. The changing circumstances impacting on the work of Learning Managers are examined and readers are encouraged to identify innovative solutions to apply to teaching practice. Transdisciplinarity is aligned to Learning Management and suggests the application of new dimensions to education.
Chapter 8 by Cecily Knight explores the construct of resilience and how Learning Managers can respond to enhance students’ resilience. This chapter reflects on what resilience is, the changing circumstances that impact on the work of Learning Managers, the development of policies reflecting the need for resilience and a three dimensional framework for understanding resilience that aligns with the Dimensions of Learning (DoL).

In Chapters 9 and 10 David Lynch, Richard Smith and Tina Doe, examine the notion of ‘learning design’, which is the central knowledge and skill set informing the work of Learning Manager. The objectives of these chapters are to locate the idea of learning design in the context of current schooling practice and to presents a series of resources that can be used by the developing Learning Manager as they learn to design and ‘execute’ successful learning experiences.

In Chapter 11, the concept of ‘portal task’ is defined and applied to the notion of learning design and how it can be used to ascertain capability and so certify that learning outcomes have been achieved. Paul O’Neill and Bruce Knight provide a brief outline of outcomes based education that highlights the declarative and procedural knowledge required to demonstrate the meeting of outcomes in real contexts.

Each chapter commences with a series of defined learning outcomes. These learning outcomes indicate to the reader the knowledge and skill sets that are associated with each chapter and as an overview of essential learning components.

**Learning outcomes**

By completing this chapter you, as a developing Learning Manager, will be able to:

The chapters have been chiefly organised through a series of commentaries, which are formatted in essay format. These commentaries are broken in sections or information chunks which are supported by a series of notations and activities that engage you to development knowledge and skill competence associated with each.

Throughout the book a number of symbols are used to assist your navigation through each section of each chapter. These symbols and the sequence of information provided in each chapter denotes key learning tasks and actions as well as highlighting reference points for material that supports the theme of each chapter section.

- **This symbol highlights key points or information for noting.**

- **This symbol denotes a series of questions or tasks that are designed to engage you in understanding and developing capability with key concepts.**

- **This symbol denotes an activity/ies designed to engage you in understanding and developing capability with key concepts.**
The Rise of the Learning Manager

This symbol denotes an example that has been provided to support a section of information.

This symbol indicates further reading material to expand and heighten your understanding of concepts and ideas presented in a chapter section.

This symbol denotes a summary of information that has been presented in a chapter or chapter section in dot point or short description format. This information provides ready reference material.

The Steps to Follow

Some chapters have step by step instructions for the purposes of engaging you to learn and practice key skills associated with chapters. This symbol denotes these sections.

Having now made introductory comments the task is to now turn to the body of the book. Begin reading the book in the order that the chapters are presented. Use a journal to record and reflect on the responses you make to the questions and tasks that embrace each chapter and then use the book as a reference as you begin to apply the knowledge underpinning the work of Learning Manager.

Welcome to Learning Management and to a career as a Learning Manager.

1 Christensen (2001) no page
2 Nowotny (2002)
3 (Rowe, 2006)
4 Lingard, Hayes and Mills (1999)
5 Smith and Lynch (2006)
7 Smith and Moore (2006)
8 Bourdieu and Passeron (1977)
9 Smith and Moore (1006)
10 Fletcher (2001)
11 Caplan (2001)
12 Smith and Moore (2006)
13 Rowe (2006)
14 Smith and Moore (2006)
15 Wegner (2006)
16 Smith and Lynch (2006)
17 Stephenson (1999)
18 Smith and Lynch (2006)
CHAPTER 2

Australian Schooling: What Future?19

David Lynch and Richard Smith

Learning outcomes
By completing this chapter you, as a developing Learning Manager, will be able to:

1. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   - Examine and generate scenarios for the future of education
   - Examine and locate socio-political impacts on education
   - Identify, generate and utilise innovative solutions that inform the practice of Learning Manager

2. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager:
   - Learning Management

Schooling in Australia is a concept that has changed little since its nineteenth century naissance, leaving it vulnerable to rapid historical change20. This chapter examines the future of schooling in its current change malaise, arguing that without significant workforce re-skilling, schooling and education will be concepts more attuned to the profits of the market than the needs of the individual and society as a whole.

At the time of writing, there are federal government public school funding initiatives, combining new rules for the distribution of funds to the government, Catholic and Independent school sectors. These circumstances threaten to wind back the operational capacity of government schools while encouraging the non-government sector. This situation, and its implications for whole-of-government policy and the electorate, is an effect of a series of historical and political circumstances in which all school systems are enmeshed, and will precipitate the market intervention we detail in this article.

We argue that if education systems fail to adapt to emergent conditions, the pressures for education and training outside the state education system will accelerate so that the state school system becomes even more vulnerable. In turn, the teaching profession itself is similarly vulnerable as the authenticity gap between school life and the rest of the world widens. We contend that students, their families, nor governments will wait for state schools to catch-up21.

The task of adjusting industrial-age state school policies to the requirements of ‘new economy’ life and professional experiences is espoused in various state education documents — such as 2010: Queensland State Education22 — where education systems and individuals schools advocate the need to adapt to social change and the future and the rhetoric is replete with references to knowledge workers, the information economy, even the learning organization. But few schooling organizations or individuals in them appear to act as if they believe what they are saying.

In this context, professional and industrial campaigns for example, in support of increased teacher salaries23, fail to account for the emergence of a new historical era and the need for fundamental educational change. They may be ultimately destructive of the education profession24 because attempts to shore up the existing schooling institution are more likely than not to generate popular support for models of provision other than the taken-for-granted ‘school’. In turn, because state and non-state education systems currently operate with government money25, even a partial withdrawal of government from the education sector will more than likely cause the demise of state systems at least. As Davis and Botkin26 have argued, there are signs that school education could be delivered in technologised forms and in-
house industry training facilities. Against this background, we discuss a number of trends that already shape schools. We argue that three mechanisms, namely funding arrangements, ‘producer capture’ and the voice and direction of industry, will determine the future shape of schooling in Australia.

THE PARADOX AND CHALLENGE OF SOCIO-HISTORICAL CHANGE

Since the early 1970s, the ‘de-industrialisation’, ‘de-nationalisation’ and ‘deregulation’ of the Australian economy have become characteristic features of everyday life. Technological developments have affected every aspect of the home and workplace as the redefinition of work practices proceeds. A study of two decades of census data, for example, revealed that Australia’s job growth area is ‘The Office’. This category refers to all activities involved in managing public and private affairs, including employment in front offices, finance, insurance and real estate, companies providing services to other companies, public administration, and non-profit membership organizations. Developments such as these points to the emergence of the ‘new world economy’ — an interconnecting and interdependent arrangement that generates unprecedented international economic and cultural competition.

Knowledge and the capacity to transform it quickly underpin this new order. Drucker argues that the source of wealth is knowledge. Knowledge enables the production of productivity and innovation. Knowledge used in the ways Drucker describes provides organizations in both the public and private sectors with the ability to configure their human resources and knowledge-dependent innovations in novel ways. This gives such firms a comparative advantage over those that simply adopt and adapt production processes in low wage environments. In turn, the demand for knowledge itself stimulates ‘knowledge’ production, knowledge-based jobs and person-based service industries.

Knowledge used in the ways Drucker describes provides organizations in both the public and private sectors with the ability to configure their human resources and knowledge-dependent innovations in novel ways. This gives such firms a comparative advantage over those that simply adopt and adapt production processes in low wage environments. In turn, the demand for knowledge itself stimulates ‘knowledge’ production, knowledge-based jobs and person-based service industries.

The value of knowledge and knowledge production has increased dramatically and the speed and ease of communications across cultures has ensured that the skills and knowledge required in the new economy are a component of everyday life. Consequently, there is pressure on school curricula to change and to assume new roles. There is also increasing insistence for school systems to place greater priority on preparing students to live and work in the emergent society. Thus, the “purpose of education systems is to prepare young people in appropriate ways for the challenges and responsibilities they will face throughout their lives”, Bentley says, “and if society is changing, so should the way in which we introduce young people to it”.

School systems everywhere are under increasing pressure to meet these challenges and to prepare students for a globally competitive and technologically driven world economy. This insistence cannot be dismissed as just another lunatic ‘economic rationalist’ ambit claim. It has broad social justice implications for individuals, families and society. This is because a wider participation in the life of the country, than has happened in the school systems to date, is a policy goal and participation in the emergent society requires school graduates to have new skill and knowledge repertoires and conceptual toolkits.

Some of the most strident pressure comes from within the education sector itself. Hargreaves for example believes that schooling has run its historical course. He states that “reflecting upon the research basis of teaching, much teaching, specific lessons and acts of individual attention to students are nothing more than face saving disguises for pedagogic incompetence”. He goes on to say that the “dominant models for creating, disseminating and applying professional knowledge for teachers are now:

- almost entirely inappropriate and ineffective
- a serious waste of material and human resources
- add to the low morale and the serious shortage of teachers"40.

If Hargreaves is only partly correct, the pre-service and continuing professional education of teachers is an enormous strategic task for the school sector. Apart from the established need for up-skilling and re-directing the efforts of school systems, the predicted retirement of 50% of the Baby Boomer government teacher work force by 2005 in Queensland is an unprecedented opportunity for the ‘renewal’ of policy, teaching and school administration. Nevertheless, the light of innovation and critical foresight has not shined brightly on policy, pre- or post-service teacher education, or administration in the last few decades. The implementation of education policy, its administration and teaching practices continue to rely on delivery, industrial and registration practices and ideologies of eras now long past41, in spite of many systems attempts at reform.

One of the major reasons for this malaise can be found in the ways information is disseminated in education systems, either from universities to schools, systems to schools or from school to school42. In recent times, for example, Queensland state school principals, like those in education systems throughout the Western world, have been bombarded with various pieces of literature espousing the virtues of ‘transformational leadership’, ‘multi-level leadership’ and ‘collaborative leadership’ (to name but a few), as necessary drivers for school reform43. However, the commitment to change, the level of underpinning knowledge and the preparedness to take risks are not high in school systems. Reflecting on the Queensland school systems, there are good reasons for the degree of risk aversion that blocks change policies. There is the public service domination of promotion processes in schools (and in the senior service ranks of government schools) that act as a straight-jacket on innovation and flair. This reflects the authoritarian years in Queensland education that created a culture of schooling in which the line of vertical authority, working under supervision and espousing conservative religious, political and social values were the normal expectations of teachers44. Many of the Baby Boomer school principals and teachers were trained and had their formative career years during the 50s, 60s and 70s.45 It would be surprising if these people, as a pool of expertise and authority in the various systems have had the disposition, knowledge and skill to re-engineer education systems for a new historical epoch in the 2000s period.

Moreover, relatively few state school principals have been required to, or felt it necessary to individually acquire, higher formal qualifications or professional management training during their careers46. Some of course were notable exceptions. The exceptions, either by seeing the historical landscape more acutely, or motivated by a lust for converting ideas into children’s’ futures or by exasperation with repeating failing formulas, became beacons for others to emulate. But in general, school teachers and their administrators were poorly served by professional preparation faculties. Incentives provided by employers, universities (and CAEs), the private sector and the teachers’ unions have also failed to engender the need for continuing professional growth and development. Consequently, in the education field, there is no formal professional registration, system or industrial requirements for the additional qualifications and professional skills and knowledge development, so valued by other professional fields. In addition, government education systems have tended to devalue data collection and policy-making based on research and knowledge in favour of ad hoc and fad-following ‘programs’. These sins of omission of the industrio-public service mind-set are starkly revealed as inadequate when faced with an era when there is premium on finding new directions that imply risk-taking together with a stringent emphasis on quality compliance and accountability47.

Finally, there are significant generational differences that emphasise the clash between the past stability of schooling and emergent challenges as new teachers enter the schools. As an example, the value of a ‘principal’ is given by her reputation and standing in the field. In this sense, having scarce knowledge has value. In contrast, working in the ‘new economy’ puts a premium on familiarity with networked knowledge rather than with scarcity. In the ‘information society’, the more networks an individual has, the higher the value of his or her relationships. People steeped in the industrial-era model tend not to comprehend this new mode of operating in professional fields48.

In short, the industrial-era model mind-set affirms the emergent world as ‘the same’ as it always was, but with more ‘problems’ to grapple with — these problems being seen as more ‘managerial’ and ‘technologised’ than a previous
‘easier-to-deal-with’ age. People with this mindset often seek to package and deliver the ‘old’ more ‘effectively’ and are wary of the ‘change’ that threatens what they know. The contrasting mind-set asserts that the world, because of the effects of new technologies, the structure of a new kind of labour market, the universalism of popular culture, the need for self-assertion and patently different life prospects for students, is radically different. There is the ever-present tendency for each to mistake lack of understanding for misunderstanding. We hasten to add that we are not arguing that the culture of the ‘young’ will ipso facto revolutionize the schools after the Baby Boomer exodus or indeed that it should, but it does put the purposes of school systems and succession management on the agenda for everybody.

SOCIO-CULTURAL FORCES

Schools face a different kind of world to that of the 1980s. The structure and character of families has changed from the nuclear family of the ‘home’ and the nurturing family assumed in much curriculum development. There are new patterns of employment and underemployment, greater mobility and new concentrations of poverty in both rural and urban settings that have an impact on families and schools. All school systems and their students reflect social and demographic changes in the diversity of experiences they have with different cultures and ethnic groups, and from technologically and globally driven changes to Australian culture. It is hardly surprising for example, that the Queensland government school system reports increasing effects from social change including levels of anxiety, depression, lack of discipline, aggression, inadequate literacy skills and a greater need for adult role models. The government system is in this sense a canary for all systems.

Consequently, there are now expectations of schools, classroom teachers and principals to provide much of what was traditionally delivered by parents through family life. For teachers trained in an educational era centred on the ‘three R’s’ and a compliant, stable, client-base, this is a difficult agenda. Also, there are whole-of-government, semi-government and community-based organization initiatives aimed at forging partnerships with communities in ‘one stop school’ initiatives. Such initiatives rely on different sets of skills and different kinds of preparation and training for teachers. The new challenges further reinforce the need for necessarily different modes of professional activity and increased levels of teacher skilling.

A significant difficulty for dealing systemically with such scenarios is that the mind-set of on-the-job training is not a real part of the school’s business. There are very few schools or school related organizations that respect how much learning has to happen to keep existing staff and new recruits current in their knowledge and skill bases. The fact is that there are too many children to look after, too much work to do, too many deadlines to meet, too many returns to deliver and too few skills for doing them: except in the people-sapping traditions and practices of the past. In this way, the really new, like globalisation and the effects of technology and work patterns rather than the perceived pressures to act (‘behaviour management’), slip away unnoticed in ways that prefigure rapid obsolescence of people and institutions. We pick up this theme in the next section.

POLITICAL-SYSTEMIC FORCES

There is a trend to devolve more responsibilities to schools in education systems throughout Australia and the Western world. In Queensland for example, school-based management (SBM) has a particularly strong role. A former Director-General of Queensland Education, concedes that many such attempts to reform education systems are attributable to ‘the increased complexity and cost of education, a press for accountability in terms of outcomes against expenditures, various public sector reforms, public and professional criticisms of education, and the changing nature of education’.

The research literature on recent reform efforts suggests that the concepts of devolution and SBM have altered the way in which school principals administer their schools. Principals have been transformed from supervisors of top-down directives to facilitators of individual site-based needs. They are now considered to be corporate chief executives with responsibilities encompassing resource organization and management, curriculum planning and school marketing.
Principals are expected to balance the demands of students, teachers, parents and the State in a climate of accountability, ambiguity and uncertainty. Simultaneously, these new responsibilities inadvertently turn a principal’s attention to administrative functions rather than to the classrooms and the business of teaching/learning for which they have been rewarded by promotion processes. They are, in a strong system sense, the wrong people for the job.

The classical principal’s role is especially distracted and re-focused by the accountability mechanisms that accompany state and federal education budgets. Consequently, in the education sphere, there is a continuing debate about ‘new ways’ of funding schools with commercialisation, education vouchers, privatisation and parental choice prominent. Such proposals particularly threaten the traditional funding regimes enjoyed by government schools. A commercial funding regime would surely alter the management environment of government schools and in turn, the pre-requisite skills of teachers and school principals. While some see such a possibility as cataclysmic, there are obvious precedents in the non-government school sector.

Other endogenous ‘forces’ such as government responses to globalisation impose still more new ‘priorities’ on the concept of a school and on the school principal in particular. The ‘Queensland Smart State’ policy is a clear example of how a government policy requires non-traditional outcomes from the education system. The policy is a comprehensive blueprint for economic, social and educational collaboration to produce an economy and society geared up to meet the demands of globalisation. Education Queensland’s contribution to the whole-of-government Smart State policy is a set of initiatives labelled ‘2010’, including a socio-politico-analysis of education in the 2000s, the development of new curriculum concepts (‘New Basics’) and the re-organization of Years 10-12 to achieve better pathways for all students.

The Smart State policy and the new 2010 education policies require a different knowledge-base and mindset about schooling and its potential in the government sector especially. The policy does not sit comfortably with risk-aversion at all costs, lecture-lab-classroom school environments or with the curriculum, teaching and assessment regimes of the past that persist in schools. Inevitably, the implementation of 2010 will fall to many working in schools that are unfamiliar with the policy so that the old rules and ways of doing things remain dominant.

TEACHING AND CHANGE

Teaching is now understood as a complex profession, far removed from a reliance on direct instruction, control and compliance. It requires significant levels of training, skills and experience, similar to other ‘human dynamics’ professions. The skills required for teaching and learning include networking and teamwork, flexible working arrangements, problem-solving orientations, assisting students to have successful pathways, using information technologies as tools, and coping with constant uncertainty. The teacher-centred classroom in which individualisation was rarely achieved, is making way for more focused student-centred regimes that provide customised pathways.

Teachers and school principals have a difficult task to meet these new policy imperatives. Schools largely operate on the strength of human capital, especially the consent and expertise of teachers. However, given social change and consequential policy demands on schools, there is a need to re-skill the teaching and administrative work force (capacity building) so that they have the resources to undertake education reform. This is less a comment about ‘teachers’ and school ‘administrators’ as an observation on the speed of change.

Teachers’ unions are hardly exempt from this catch-22 situation. Campaigns emphasising populist platforms including increased salaries, smaller class sizes and more money for behaviour management reinforce the ‘old’ teaching and learning paradigm that has demonstrably failed most children and their families. The reality is that such policies, no matter how popular they may be with a predominantly Baby Boomer constituency, are a superficial and short term palliative for significant pedagogical and philosophical reform. To participate in this noble vision, the profession needs far greater emphasis on increased skilling rather than a litany on self-interest. On their part, the unions remain remiss until there is a vision of the future that is clearly enunciated as a replacement for the ‘the good old days’.
The content of the ‘new vision’ are not difficult to find and teachers’ unions along with teacher educators, curriculum developers and others involved in policy formation have access to it. Queensland research shows that future employees need to be equipped for work in the knowledge economy as opposed to the industrial economy. The knowledge economy is characterised by increasing knowledge intensification in all activity and the emergence of knowledge as a commodity in its own right. Crucially, what matters for social, economic, cultural and educational performance in the knowledge economy is the capacity to learn rather than just increasing the stock of knowledge. In addition, changing social profiles and demographics in new economic arrangements generate new configurations of social problems that require solutions. There are new conceptions of how people understand and learn that arise from the different historical configurations of technology and change. These trends need analysis and above all, action.

THE FUTURE OF EDUCATION

There are three key factors and their interaction that have the capacity to determine the future of schooling. First, there is the notion of ‘continuing producer capture’ that exists in any system where there is a monopolistic control over resources and possibilities. The teachers’ unions are an exemplar of such a control vector because of their hitherto monopoly over industrial issues and ultimately, education policy in the government sector. Second, there are the voices and actions of employers who ultimately provide students with life pathways. These diverse ideological and practical interests judge the outcomes of schooling and have the capacity to steer educational opinions. Third, there is the notion of an education market that can be understood along the continuum from ‘open’ to ‘closed’. Our view is that the education market is currently semi-closed because of the dominance of federally-based funding. We discuss each of these factors briefly.

Producer capture: Union monopoly

In recent years, the Queensland government education system, as an example, witnessed a number of well-meaning reform agendas. These include the ill-fated ‘Hughes Review’, ‘Focus on Schools’, ‘Shaping the Future’, ‘Leading Schools’, ‘the School-based Management Choice’, to name but a few. All of these were constrained in shape or form by the Queensland Teachers’ Union (QTU). It could be argued that constraining public policy is a legitimate function of unions and further, that QTU input improved these reforms. We have no difficulties with this line of argument. Our difficulty is that the union role in educational reform is always that of a party whose demands must be met regardless of the consequences, even if meeting them creates philosophical flaws in the subsequent policy (e.g., the failure of the Leading Schools policy in Queensland to enable schools to appoint their own staff). Governments, of whatever political colour, are then forced, by definition, to comply with union demands.

Consequently, the policy-critical mechanism that is the QTU and its endorsement, affects all new initiatives that Education Queensland might wish to enact. This is why we refer to ‘producer capture’. A negotiated settlement with the QTU and it’s almost 100% membership coverage of state school teachers is practically mandatory for any reform agenda.

To reiterate, we have no difficulty with a union protecting the industrial rights of its members and flexing its muscle when those rights are infringed. However, in periods of rapid social change when vision and leadership are paramount for the future of organizations, producer capture can easily jeopardise the survival of a school system. If teachers are central to teaching, learning and educational decision-making as we believe they are, then it would be ironical if they were persuaded to oppose new practices and mindsets on the basis of historical memory. It is even more paradoxical for teachers to be persuaded to oppose on ideological grounds the very changes in practices that enable systems and individual schools to transcend the predicaments many school students and their families find themselves.
Put simply, if teachers’ unions do not have templates for, and do not offer foresight and encouragement to the renewal of the schools, they prepare the ground for parents and industry groups to opt-out of the state system. In this scenario, state school systems especially would rapidly decline, as increased funding flows to non-state schools (rather than ‘systems’) that provide a more dynamic and responsive education market, based on choice and self-satisfaction. It is pointedly relevant in the present circumstances that there is a tendency for teachers’ union debates to focus on industrial matters in ways that entrench existing teaching paradigms and practices. This may well prove decisive one way or another.

Further, the emerging shortage of qualified teachers opens a range of possibilities for teacher recruitment into and preparation for a more differentiated schools sector. Apart from the intriguing possibilities for teacher education in general that such a development may have, it is conceivable that new education providers will employ a range of ‘professionals’ other than ‘teachers’ recruited from struggling state and non-state systems and schools. Indeed, the emergent schools will undoubtedly seek combinations of skills, knowledge and performance that set them apart and they may well view state school and existing non-state school teachers as irretrievably tainted with obsolete culture and tired practices. In these circumstances, what counts as being a ‘teacher’ is bound to be different to the now age-old definitions found in teacher education texts and in the (rare) registration body guidelines. As the demand swings towards novelty in a differentiated schools sector, the ‘qualified’ teacher of today is already positioned to give way to a new type of professional.

Such professionals are likely to interpret the demands of the market and the needs of the learner from the perspective of expert knowledge drawn from trans-disciplinary fields. Their job will primarily be that of managing learning for definite outcomes, no matter what the entry characteristics of the learner or the neighbourhood. Developments like these will depend on a kind of pedagogy for schooling more akin to the understanding of learning in a generic sense rather than as ‘school teaching’. It will be more responsive to the values and preferences of contemporary children and the right that every child has to have meaningful pathways into further education, training and the workforce. Such professionals will be less concerned with the industrio-public service model and culture based on Year 12 ‘exit’ than with the need to reach Year 12 because it is but a milestone on a journey elsewhere other than school. The ‘qualified’ teacher of today’s teacher education programs is at best partially prepared for such circumstances.

The voices and practices of employers

Business and industry seek ‘a different type of worker’, one who can participate in teams on just-in-time projects, on a project basis, utilising higher level skills associated with the knowledge economy. In a global context, the use of knowledge in the creation, production and distribution of goods and services is now increasing with an intensity and speed of a new order. Education Queensland points out that output and employment in the new knowledge based and person based service industries are growing rapidly, and that the value of knowledge has increased dramatically and rapid communications across cultures has become an essential component of media, businesses and everyday life. The consequences of globalisation on national and local ways of life are now a matter of public record. A significant effect on schooling is that the rate of technological change is such that by the time students complete Year 12 or further education and start work, their skills and knowledge are often redundant.

Nevertheless, teacher education, schooling and educational policy-making remain largely isolated from the knowledge economy and the labour market. The structure of education systems, their bureaucratic support and the curriculum development and examination mechanisms that determine patterns of school life, sustain the inability of a single school to make fundamental responsive and timely changes to curriculum, pedagogical practices or organization. It is for this reason that there are real possibilities that business and industry will call for a more responsive education sector.

When governments opt-out and leave education to the market
The Rise of the Learning Manager

The compulsory schooling market in Australia consists of state and non-state schools — the latter primarily operated by church or affiliated church bodies. The business sector has remained aloof from schooling mainly because the school education market is highly regulated and restricted by Federal Government funding mechanisms. Moreover, historically, there has been a strong ethos of schooling contributing to the ‘common good’ rather than to share-holders and profit. There are signals that these assumptions may be reaching the end of their tenure.

Public debate about the nature of education and how it should be dispensed in the compulsory schooling years has opened up the possibilities of the education ‘market’ and the role governments play in maintaining the status quo of state schools. Commentators argue that governments should abandon education altogether, so that education can be bought and sold like any other commodity. The only role governments should play, it is claimed, “is to provide means tested tuition vouchers for low income families”. Paradoxically, the predicted teacher shortage, a result of a decline in teacher graduates and an aging workforce, provide a reason for such debates to continue.

In addition, business commentators are often critical of school outcomes. When outcomes are linked to education expenditure by way of direct funding or taxation relief, and it is realised that the government is the only education sector not yet privatised, it is but a small step to conceive of schooling as ‘non-government’. The absence of the government in the education market will have the most significant impact on schooling as we know it, because education currently operates almost entirely on government sustained money.

Governments have a variety of options for privatising state education. The most widely canvassed is that of education vouchers that parents can ‘spend’ in schools of their choice. Another is the tendering of local or district school operations to private companies. In the following part of the paper, three possible schooling scenarios are explored in the context of a deregulated education market and with them an insight is gained into the future of Australian schooling as it is conventionally understood. They are entrepreneurial teaching, education as ‘big business’ and teaching as a cottage industry.

Entrepreneurial teaching

Consider this scenario: an education voucher in Queensland could be worth approximately $6,000 per student. It is not difficult for entrepreneurs to prepare a business plan for a school with as few as 20 students (20 students x $6000 each), perhaps in a room in a private dwelling. Further, imagine parents disgruntled by the state (or non-state) system or with particular needs, having a choice about the teacher who will teach their child in a dramatically smaller class. Teachers would need to be more diligent perhaps than they are now because of the market relationship that binds teacher and parent. This scenario could be further extended to include a partnership relationship with an industry-specific locale to provide and prepare its ‘future workforce’.

Important skills for the entrepreneurial teacher include public relations, financial management and a capacity to manage successful learning according to defined outcomes. The teaching and learning relationship by definition would be bound by accountability in the agreement between the entrepreneur, parents or an industry, the student, the teacher and the school that certain outcomes are achieved.

Education as another ‘big business’

Commentators argue that the greatest single business opportunity today is education. The state education market in Queensland, for example, is worth four billion dollars. If business planning could shade 10% off the operating costs of this ‘four billion dollar enterprise’, another profitable public enterprise — like the Commonwealth Bank — could be created. We are not arguing that this is necessarily a good solution, but we are suggesting that saving and redirecting ten percent is not difficult. For example, it is possible to imagine a school staffed by employing other kinds of professionals, many of whom earn ten percent less on average than a registered teacher. These professionals can provide services that support and nurture children as well as teachers, albeit differently. Moreover, one can imagine a school staffed with
many more ‘para-professionals’ who add value to the core expert team, but who are even less expensive for a school budget than teachers or other professionals. If the projected teacher shortage in Australia\textsuperscript{103} is viewed in these terms, then the worst projections can be revised.

Current state school buildings in Queensland, for example, are costly to maintain and require significant renovation\textsuperscript{104}. Under these conditions, new players in education would seek to avoid the mounting debt and would instead invest heavily in ‘on-line learning’. Information technology would be used to enhance school outcomes, streamline the workforce and in turn increase profits. One can imagine that the traditional school setting would be progressively turned to other uses to save the cost of maintenance, to protect the owners against the risks of litigation, or sold to the highest bidder.

**Home schooling becomes the next cottage industry**

Imagine a family of three receiving an additional $18,000 worth of income in the form of education vouchers provided by government (3 children x $6,000): an incentive for parents or a group of families to ‘teach’ their children. The current interest in home schooling suggests that a significant number of parents and communities would opt for such an opportunity. The ‘entrepreneurial teacher’ may also take up this option by providing consultancy services to such families. In some scenarios, qualified teachers in Queensland, who cannot find jobs in the new entrepreneurial climate, will seek this exposure to the school student population as a last resort.

There are complex issues about the content of the curriculum, the purposes of education, and sovereignty involved in These caricatures of schooling provide fuel for debating issues such as public schools as guardians of the ‘common good’, the value of a common curriculum and the idea of a government school sector as anything more than a basic safety-net provision. Our view is that these and a myriad of other scenarios are bound to emerge if schools continue into the future unchanged.

**CONCLUSIONS**

Operationally, government schools appear oblivious to the changing paradigm ballooning around them, leaving them vulnerable to the ‘market economy’ that stands poised to radically change schooling and the concepts of public education. Yet, community debates in education continue to centre on the hoary old chestnut of ‘back-to-basics’, while teachers’ unions campaign for improved teacher salaries and conditions. On their part, business, industry and policy researchers call for new types of workers, placing pressures on governments to reform schools and their purposes aimed at community building. All governments have a new-found focus on education and training, but missing is a strategy to prepare teachers and school administrators for the tasks that fundamental schooling reform implies. The main agenda, in our view, is the up-skilling of the teaching work force without juxtaposing a largely a historically outmoded education system against the forces of change in ways that exacerbate teacher stress and overload. In this sense the teachers are both the problem and the solution\textsuperscript{105}.

Re-skilling teachers is not an easy task, as most teachers trained in an era now long past, still perpetuated by teacher education models today, and because little is known about effective ways of disseminating information within education systems, either from universities to schools or from schools to schools\textsuperscript{106}. Commentators\textsuperscript{107} argue for a shake-up of teacher education institutions and more practical training on how to teach and for a move away from educational theory. Our view is that these commentators are correct in a call for a different teacher education delivery model and for different transdisciplinary contents more suited to the social needs of schooling.

The re-skilling challenge is not one that can be tackled by school educators alone. Partnerships will need to be forged with the teaching profession, community groups, business and industry, teacher training providers and schools and education systems both nationally and internationally. Such partnerships between stakeholders can only operate on
principles of equality between participants where the common agenda is the creation of professional development programs that meets the needs of individual professionals, schools and employers. In this sense, the up-skilling strategy resembles a ‘business-to-business’ (B2B) arrangement. This is a vastly different model to that of the usual higher degree route that teachers have progressively rejected as a means for improving professional knowledge and skills and involves decisive role changes for academics, teachers, employers and the host of others involved in professional development.

Together with the B2B model, up-skilling for the schools workforce implies exceptionally flexible delivery mechanisms and a variety of expertise pools in the delivery of programs. Moreover, the mode of delivery must by definition fit the patterns of work experienced by school staff. In this respect, the up-skilling course can model the very experience that the program is attempting to encourage teachers and administrators to adopt. Finally, up-skilling is not likely to be a ‘hand-out’ to teachers and administrators in the old sense of in-service courses beloved by teachers. In contrast to that mentality, up-skilling programs are likely to involve some costs to the participants (like other professions) and to involve some required outcomes. These characteristics are possible and acceptable if the B2B model has been well organised and implemented. We have put the view that there are serious implications for the teaching profession and schools if the challenge of re-skilling is not met — the idea that a ‘Schools’ exhibit might exist, ‘just opposite the blacksmith exhibit’ in the National Museum, is now a compelling motivator for change to take place.

### Question 1

1. What are the implications for our society if ‘home schooling’ or ‘cottage type learning situations were to become the predominate ‘education’ circumstance in Australia?

2. How attractive is it for you, as a future Learning Manager, to set up your ‘own business’, as described as ‘entrepreneurial’ teaching?
   - What are the implications for your work as an entrepreneur?
   - What skill sets would you need to acquire?
   - How might the dynamics of your work with students and their parents change?
   - What might you have to factor and consider in such an arrangement?

### Question 2

1. Generate a series of scenarios for the following situations. Think about what is impacted, what would stay the same and the positives and negatives of such happening.
   - Coca Cola (or a fundamentalist religious organisation) successfully wins a 10 year contract to operate a large urban high school: one previously owned by the State.
   - The State decides that it will reduce taxation but in return charge a (full or part cost recovery) tuition fee for children wanting to attend a State school.
   - The State decides that it no longer wishes to control 'curriculum', so it calls tenders. What might the criteria be for awarding such a 'contract'?
   - The State decides that it will issue a voucher to every school age child, which parents can use to have their children educated. Should 'strings' should be attached? If so why?

2. In the year 2015, 'Brains4U' announces that it has invented a machine that, with a simple invasive procedure, can implant knowledge direct to the brain. Generate a scenario to outline the likely impacts of such. Give thought to:
   - What are the implications for our society and how education is currently constituted?
   - How might such a circumstance impact humankind? Would this be a good thing?
   - What would be the role of the Learning Manager?
This chapter was previously published in 2002 in the *Australian College of Educators*, 17, in a journal article of the same name. Retrieved 9 November, 2006, from http://www.austcolled.com.au


Education Queensland (2000)

Battams (2000)


Davis and Botkin (1993)

Robertson (1993)

Ferguson (1990)

Doyle, Kerr and Kurth (1999)

Beare (1995); Beck (1999a, 1999b)

Drucker (1999)

Gibbons, Limoges, Notwotny, Schwartzman, Scott and Trow (1994) page 63

Education Queensland (2000)

Cole (1999)

Cullen, Cosier, Greco and Payne (1998)

Bentley (1998) page 38


Hargreaves (1997) page 3

Hargreaves (1998) page 17


Hargreaves (1998)

Marsh (2000), for examples see Fullan (2000)


Eckersley (1999)


Knight (1993), Logan and Watson (1992)


Edgar (1999)

Education Queensland (2000) page 4


Eckersley (1999)

Cole (1999)


Berkeley (1991) pages 61-62

Caldwell (1993a)


Caldwell (1995)

New Internationalist (1999), Shokraii (1998)


Caldwell (1993a, 1993b)

Beattie (1999)

Smith (1999)

Edgar (1999)


Hargreaves (1998)

Cole (2000a) page 8

For example see Bentley (1998), Lamb and Ball (1999)
The Rise of the Learning Manager

Schmidt (1999)
Lundvall (1998)
Edgar (1999)
Abbott and Ryan (1998)
Queensland Department of Education (1990)
Wiltshire (1994)
Peach (1997)

During 1999, all state schools in Queensland were asked to indicate the degree of school-based management they wanted. This was the incoming Labor Government’s reaction to the previous government’s ‘Leading Schools’ program which caused the Queensland Teacher’s Union and school communities much angst.

Lynch (1997)
Hattam (2000)
Levin (1997)
Cole (2000a) page 8
Monash University (2000)
Education Queensland (2000)
Evans (1998) pages 5-26
Schmidt (1999)
Ryan (1998a)
Brown (1997)
Cited in Davidson (1994)
Davidson (1994) page 11
Cohn (1997)

Estimate based upon the Queensland Government’s 1999-2000 Education Budget divided by total student population: indicative only.

For example see Cole (2000b)
Cited in Davidson (1994) page 16
Monash University (2000)
McCollow (2000)
Ball (1990)
For example see Cochran-Smith (2001), Hargreaves (1997), Hirsch (2001)
CHAPTER 3

What is Learning? Current Knowledge and Theories

Kim Nichols

Learning outcomes
By completing this chapter you, as a developing Learning Manager, will be able to:

1. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   - Examine and generate scenarios for the future of education
   - Identify and utilise innovative solutions that inform the practice of Learning Manager

2. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager
   - Learning

HOW IS LEARNING DEFINED?

Learning is variably defined as the process of acquiring knowledge or skill through experience or a change in neural (or brain) function as a consequence of experience. If experience is the common mode of learning in these two definitions, how do we associate the acquisition of knowledge or skill, and changes in brain function? In essence brain research is trying to understand how learning, the acquisition of new knowledge, skills and understandings, affects neural function.

This chapter discusses a new paradigm (new way of thinking) about learning called the ‘Learning Sciences’ that has emerged from new scientific understandings about the brain and how these new ideas enrich studies of learning and inform classroom teaching. The Learning Sciences bring together the various cognitive theories of learning with the neural basis of learning. It is currently the only composite learning theory.

How would you define “learning”?
Work with a partner to write a definition of learning including the role of the brain as you understand it.

LEARNING THEORISTS HAVE EMPHASISED THE IMPORTANCE OF UNDERSTANDING THE BRAIN

Over the last century there have been a number of teaching and learning theories that have shaped the classroom environment. Historically, it is interesting to look back on some of the more prominent learning theories that expressed the need to understand the physiological as well as the neural processes of the brain in order to better understand how individuals learn and how this can inform teaching practice.
B Frederic Skinner is perceived as one of the fathers of the Behaviourist theory of learning proposed in the beginning of the twentieth century. Behaviour, Skinner believed, was the only observable and measurable response to learning. The basic emphasis of this learning theory viewed learners more as responsive to and moulded by reinforcement rather than active thinkers. This philosophy of learning viewed teaching as a process of transmitting external knowledge to students through demonstration, reinforcement, and controlled and sequenced practice (referred to as didactic teaching processes) and was the prevailing practice through to the 1970s. Teaching in a behavioural context, emphasises performance rather than understanding. However, Skinner admitted to the likelihood of brain processes contributing to learning but he perceived it as a ‘black box’ that could not be adequately observed or studied in subjects. Indeed adequate technologies to observe brain activity were not available early in the twentieth century.

In 1926 Jean Piaget opposed the behaviourist theory and instead proposed that individuals cannot be handed information which they will instinctively and intuitively understand and use. Rather individuals must construct their own knowledge and understandings based on what they know and believe. Piaget revolutionised our understanding of learning from a responsive phenomenon to an active and adaptive experience. Piaget’s theory of ‘personal constructivism’ only received widespread attention in 1963. Piaget also recognised the importance of brain structure and function calling for studies on the neural processes of the brain when he stated, “it seems evident to me that if contemporary psychologists had more knowledge of biology, there would be fewer partisans of pure behaviourism, and Skinner’s ‘black box’ would be furnished with more fruitful hypotheses”.

In 1927 Lev Vygotsky took the Piagetian model of constructivism further by proposing that it is within social environments that learners construct their own understandings, also known as ‘social constructivism’. Compared to behaviourist approaches that focused on the external (behaviour) and Piagetian approaches that focused on internal experiences, Vygotsky viewed these two foci as co-dependent processes of learning. He investigated “the nature of the co-dependence between individual and social processes in the construction of knowledge”. Prior to the formalisation of the concept of the Learning Sciences Vygotsky and a neuropsychologist, Luria, through the study of learning disabilities, became interested in the integration of physiological (i.e., genetic, neural) and psychological processes. Their ‘functional systems’ approach to the study of learning, viewed the learner as a dynamic system in which there is a coordination and integration of internal (genetic make-up, neural processes) and external (social/cultural, communication) processes. Therefore, Vygotsky and Luria both recognised the need to understand neural (brain) structure and function as they relate to learning.

Discuss the following classroom scenarios with your peers and try to identify the learning theory supporting the educational environment described.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
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<tbody>
<tr>
<td>Scenario 1</td>
<td>Billy was not interested in today’s year 6 mathematics lesson. The teacher asked the students to practice their multiplication table by writing out the multiples of 9 seven times. Billy didn’t understand why nine sevens are equal to 63, but he had written it out so many times he knew it from memory.</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>In previous years Rebecca didn’t enjoy her maths class, but this year was different. Mrs. Slater asked each student in the class to design their own dream bedrooms. Admittedly, Mrs Slater’s idea of a dream bedroom was a little wacky but the dimensions of her bedroom and cost of materials were outrageous! Rebecca couldn’t decide whether to build a physical model or computer model of her bedroom, but it was her decision. She never realised math could be such fun!</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>Peter often struggled to solve problems independently in science class. He was surprised to be learning how to solve a group task that Mr. Donovan had encouraged. Mr. Donavan brought an egg into class and asked students to wrap their hand around it to crush it. Surprisingly no-one could crush the egg! Mr. Donavan said that today’s activity would help us to solve the problem. Peter’s group and all the other groups of 3-4 students in the class were given some materials to build a bridge between two chairs spaced 1 meter apart. The materials included string, pop sticks, straws and tape. The goal was to construct a bridge that would hold up the student dictionary.</td>
</tr>
</tbody>
</table>
What is Learning? Current Theories and Knowledge

CONCEPTIONS OF THE LEARNING SCIENCES

1. Brain architecture, learning and teaching

While the basic architecture of the brain of each individual is genetically determined (i.e., dependent on one’s genetic make-up), environmental factors or experiences continually influence the nature of the brain’s ‘wiring’ or ‘circuitry’. This circuitry is the basis of information processing and storage in the brain, much like a database. With this in mind, teaching then becomes the intention to guide and inspire the construction of the brain’s basic architecture for information processing, by preparing and shaping the experiences or environmental cues presented to the learners.

Discuss the phrase that describes teaching as “the intention to guide and inspire the construction of the brain’s basic architecture for information processing, by preparing and shaping the experiences or environmental cues presented to the learners”.

2. The brain’s basic architecture

The basic functioning unit of the brain is the nerve cell or neuron (see Figure 3.1). Neurons come in a number of categories based on their function. Sensory neurons are designed to respond to environmental cues like changes in temperature or pressure. When you quickly withdraw your hand from the touch of a hot iron it is the sensory neurons in the skin that detect the excessive heat. The sensation of pain comes due to the communication of the sensory neuron with pain centres in the brain, and the reflexive withdrawal of the hand is due to the sensory neuron communicating with appropriate motor neurons that then stimulate the appropriate muscle groups that enable the withdrawal of the hand. The sensory information is processed into motor information by way of integrating neurons that sit between sensory and motor neurons in the brain. This neural ‘processing’ pathway (from sensory neuron to interneuron to motor neuron) is called a neural reflex pathway, and these pathways control reflex responses, which are often automatic and unconscious. While the wiring of these motor reflex pathways is well understood, the neural pathways that underlie learning are still under intensive investigation. To understand the level of complexity of this task, some discussion about the neural circuitry in the brain is required.

A neuron has a cell body and a long ‘tail’ called an axon (see Figure 3.1). The end of the tail is called a ‘terminal’. The cell body has hair-like projections shaped in tree-like structures (highly branched) that are referred to as the dendritic field. Neural communication, which is excitatory or inhibitory, occurs at the junction between neurons called synapses, where axon terminals sit adjacent to the dendrites of another neuron. A neuron can receive information from a number of other neurons (i.e., have multiple connections to other neurons), and the final output of information is a result of the integration of the information it receives. A neuron accumulates and transmits information by way of electrical activity via the synaptic connections. The adult human brain has anywhere up to 100 billion neurons each one potentially connected to thousands of other neurons, enabling an immense degree of information processing to occur. One can
imagine the complicated circuitry or wiring of neuronal connections that is possible. Each neuron has a cell body with highly branched projections called dendritic trees and a long tail called an axon. The brain contains billions of neurons interconnected together in multitudes of functioning circuits. This wiring pattern is created during development as synapses are formed. The adult brain has literally trillions of synapses. There are two ways that synapses are formed in the brain.

**Figure 3.1** A diagram showing a neuron making a synaptic connection with another neuron.

One mechanism occurs early in development where synapses are overproduced and then lost (a process called pruning). This is the brain’s way of incorporating information from experience. Experience seems to have an impact on shaping the neural connections by using them, selecting the suitable ones and removing unsuitable ones (and so the notion of ‘use it or lose it’). What remains are functioning neuronal connections (forming the brain’s basic architecture) whose roles are to provide cognitive and sensory bases for further development. The time required for completion of this mechanism varies in different parts of the human brain. For example, within the visual centre of the brain, synaptic connections increase in number from around two to ten months of age, after which there is a steady ‘pruning’ of synapses up until 10 years when the adult levels are reached. By contrast, synapse formation in another area of the brain associated with integrating information, planning and decision making (the frontal cortex) continues into mid-adolescence, followed by a period of pruning until 18 years of age. The second mechanism of synapse formation is through the addition of new synapses in response to external stimuli. This process occurs throughout an individual’s life and is particularly important in mature brains. It is believed that most forms of memory (short- and long-term) are set through synapse formation.

While it was once thought that only the child’s brain was ‘plastic’ (able to change structure in response to environmental cues), neuroscientists now know that over the life-time of an individual, the brain continues to change, forming new synaptic connections between brain cells, in response to learning (and other) experiences. These data confirm the notions that

a. humans are lifelong learners, and
b. neural restructuring in response to environmental cues is part of the human learning process.

Therefore, Vygotsky’s theory that learning involves the integration of neural/genetic and social/cultural processes is supported.
3. What does research on brain structure and function tell us about teaching and learning?

This section will discuss specific examples of emerging research findings from brain imaging and scientific studies that shed new light on teaching and learning, following a brief description of new brain imaging technologies.

Brain imaging technologies

Brain imaging studies are based on the assumption that any learning task makes specific demands on the brain which will be met by changes in neural activity. These changes in activity affect blood flow in that region which can be measured using imaging technologies. Positron emission topography (PET) and functional magnetic resonance imaging (fMRI) are the latest imaging technologies used to detect changes in blood flow associated with brain activation during specific tasks.

Are there critical windows for learning?

Brain imaging technology (fMRI) has been used to monitor children’s brains between the ages of 3 and 15 years to create developmental growth maps. From 3 to 6 years of age there is a growth spurt in the front part of the brain. This rapid growth pattern then moves to the back of the brain to areas associated with language skills between the ages of 6 and 13 years and experiences a rapid cessation of growth after 13 years of age. From 13 to 15 years of age pruning occurs to about 50% of the brain regions associated with motor skills. The findings from this and similar studies, when associated with changing learning patterns, can provide insight into the neurological basis of critical or sensitive periods for learning. Thompson’s data indicates that learning of language and motor skills may be especially easy to attain during a critical window in an individual’s development.

Literacy learning

Between the ages of 4 and 7 children have functioning neuronal connections that enable them to transform sound inputs into language symbols. Cognitive neuroscientists have used brain imaging technology to discover that different brain regions are activated when children shift from labouring to sound out words to instantly recognising words or learning to read. In fact the more capable we become at reading and word recognition, or the more expert we become, the fewer the regions of the brain that are activated.

School-aged individuals considered as normally intelligent that are however slow at or incapable of reading are generally thought to have a disorder called dyslexia. Brain imaging studies have revealed that 10-year old children with dyslexia fail to activate a specific brain region associated with reading and phonological skills in normal members of this age group. This region of the brain is normally linked with the sound structuring of words at the level of phonemes (the smallest units of the sound system of a language like a ‘b’ sound versus a ‘p’ sound).

Cognitive neuroscientists have utilised the information from imaging studies of children with dyslexia to breakdown reading skill into its separate information processing steps. Deconstructing reading skills into individual cognitive
processes will not only support the reading impaired but may also lead to better strategies for teaching all children to read hence informing general teaching practice. While several remediation programs based on educational research have shown some success\textsuperscript{123}, programs based on neurological information are only now being trialled. One such program is a ‘word building method’ where reading impaired individuals are taught skills like alphabetical decoding and word building to allow them to increasingly pronounce a larger number of words\textsuperscript{124}. The underlying premise of this method is to teach these children the concept that a vast number of words can be made with a small set of letters.

**Numeracy learning**

Learning mathematical skills including how we manipulate and think of numbers, is usually difficult for children in their early primary years. However, it is now known that infants do have an innate number sense (i.e., knowledge of numbers and their relations) such as an ability to understand the difference between ‘many’ and ‘few’\textsuperscript{125}. Cognitive neuroscience research (using brain imaging technologies) has identified that in order to carry out different tasks in mathematics, the brain recruits (activates neuronal connections within) different regions. For example, a unique region is active when seeing a digit, e.g., ‘5’ compared to when the number as a word, ‘five’ is heard or read and different again to when the number is understood as a quantity, e.g., ‘5 is greater than 2’. This regional recruitment for these three different number manipulations is referred to as the ‘Triple Code Model’. The fact that the three recruitment areas are in different brain hemispheres tells scientists and educators that the hemispheres work together and that teaching just to the left or right hemisphere is not scientifically supported or wise.

Cognitive neuroscientists have also been able to investigate the neurological causes of the disorder dyscalculia where children lack the ability to carry out even the simplest number calculations. They lack the normal regional recruitment discussed in the Triple Code Model. These children labour over the spatial concept of quantity and therefore, they have no understanding of what number comes between 3 and 5 or even how to calculate 4-2. The predicted physiological causes of dyscalculia have provided new insights for educational programs to support these children. One predicted cause may be injured or impaired neural circuitry in the region associated with number as quantity for example. But the most common cause is believed to be the need for children to learn to connect the visual representation of numbers with their quantity and the associated verbal symbol. Symbolic thinking or transforming one symbol into another (i.e., verbal to visual) is a developmental learning process that is learned from both cultural and educational experience.

From these new understandings of dyscalculia, Dr. Stanislas Dehaene\textsuperscript{126}, a cognitive neuroscientist, designed teaching strategies to aid learning of these individuals. The finding that individuals with this disorder disassociated the number quantity from the verbal representation supported the idea that these individuals think without language. Therefore, teaching tools that serve as a metaphor for spatial or real numbers, such as the Asian abacus which is a metaphor for a number line, are being used to teach number sense. Dehaene\textsuperscript{127} has used these ideas to design the Right Start programme that teaches basic mathematical skills including counting, association between number and quantities, and the notion of the number line to individuals with dyscalculia. As calculation includes a spatial element, this educational program also uses physical objects such as ‘Snakes and Ladders’ to teach children how to see numbers spatially. The program has proven so successful in reversing the effects of dyscalculia, that some individuals, after completing multiple educational sessions, surpass their normally developing peers’ abilities in math. This suggests the program employs teaching strategies that could be successfully integrated into normal classroom practice for teaching children mathematical skills.

**Emotional learning**

In the central region of the brain lies a group of structures that together are called the limbic system. The limbic system, also referred to as the ‘emotional brain’, shares neuronal connections with the frontal cortex (area of the brain associated with integrating information, planning and decision making). Damage to these connections adversely affects the emotional aspects of learning resulting in a reduction of social judgement that is linked with cognitive ability\textsuperscript{128}. Learning not only requires cognitive ability but an awareness and appropriate responsiveness to social and environmental cues. In this way, neuronal connections between the emotional and cognitive parts of the brain underscore
the importance of Piagetian and Vygotskian notions that learning is an active, social process and individuals are capable of managing their own learning (i.e., active learners able to interpret their environment, set goals, plan and revise). This ability to coordinate one’s learning or self-regulation, a metacognitive process, includes planning, monitoring success and correcting errors when necessary, all of which require limbic system activity. By determining the neural basis of these personality traits, cognitive neuroscience can contribute to our understanding and development of, strategies for teaching emotional and self-regulation competencies.

Genetic bases of learning: Insights from Attention-Deficit-Hyperactivity Disorder (ADHD)

Often scientists/researchers learn about the normal functioning of an organ, such as the brain, by observing mental disorders or disease. Neuroscientists are discovering that disorders of the mind (mental disorders), like attention-deficit/hyperactivity disorder (ADHD), are not a result of errors in one gene but multiple genes in an individual. This ‘polygenetic’ basis produces subtle differences in behaviour amongst individuals with ADHD, and can act together with environmental factors to create (mental) functional impairment. This suggests that there is a complex interplay of genetic and environmental contributions to mental behaviours including learning. In the case of ADHD, neuroscientists have determined that genes controlling neural communication at specific synapses that regulate attention, behavioural organisation and emotional or skills learning are affected. These findings explain the short attention span, emotional outbursts and lack of coordination often exhibited by these individuals. In addition, studying brain electrical activity of these individuals shows that they are deficient in processing of sensory information, which would make it difficult for them to respond to their environment. Behavioural studies suggest that a lack of or inconsistency in positive feedback and reinforcement (both in parenting and other social interactions) also contributes to this disorder. Exposure to toxins during pregnancy is strongly associated with the development of ADHD. The genetic, neural and environmental contributions to this disorder are providing a more holistic understanding of this condition. Not only are these findings contributing to other forms of medical treatment for ADHD besides the currently prescribed Ritalin, but they are contributing to the design of teaching strategies to assist these individuals. Some strategies include consistent and positive reinforcement, slowing down the time taken to learn complex subject matter and providing fewer learning stimuli to prevent sensory overload.

Misconceptions about the brain and learning

Any text that discusses the impact of brain research on education must also discuss the misconceptions about how brain research contributes to classroom practice. One interesting notion considers that to achieve successful learning, it is essential to teach the left and right hemispheres of the brain separately. As mentioned previously research contradicts such a notion. Another mistaken concept is that the brain has growth or developmental surges and that key subjects or skills need to be taught within these growth periods. As previously discussed, different brain regions develop at different times. How education needs to be tailored to this asynchronous development of the brain has yet to be determined. The idea that people on average use only 20% of their brain but should be able to tap into the remainder is also a commonly held misconception. Early research of brain activity suggested that there were ‘silent areas’ in much of the motor regions.
of the brain not activated by sensory or motor activity. These silent areas are now known to mediate cognitive functions (such as those that occur during sleep) not linked to sensory or motor activity.

1. If educational research, including the studies of the brain, discovers that there are critical windows of opportunity to learn particular subject matter or physical skills, how might this impact general teaching practice?
2. Discuss how brain imaging studies can help to design new teaching strategies using examples from recent findings on numeracy and literacy learning?
3. How might deconstruction of a learning process or learning of a task by considering areas of brain activation benefit teaching practice?

Review of key findings on brain research and learning

Research on the brain has already extended and continues to inform our understanding of human learning. Three main contributions to our current understanding of the effects of learning on the brain are:
1. The basic architecture of the brain is modified by learning, and this occurs across the life-span of an individual.
2. These learning-induced physical changes to the structure of the brain alter brain function and behaviour.
3. Brain regions vary in their readiness to learn.

While there has been considerable progress in our understanding of the effects of learning on neural structure and function, research on the brain is only just beginning to find an application in the practice of education. Moreover, these findings need to be considered in light of existing and emerging educational and cognitive psychology research in order to be useful in general teaching practice.

Figure 3.2 A diagrammatic depiction of the learning sciences showing how experience shapes the structure of the brain and affects the processes of the mind
Figure 3.2 emphasises how the new Learning Sciences aim to integrate teaching and learning with the physiological processes of the brain such as the formation and pruning of synapses and resultant formation of functioning neuronal connections that process information. These intrinsic processes are affected by experience or stimuli from the environment such as teaching, educational environments and social settings, that shape the basic architecture of the brain (large forward arrow) and this basic architecture is also individually encoded (i.e., blueprinted) by the genetic make-up of an individual (small arrow). Factors that change the basic architecture of the brain, also impact on brain function and these functional changes affect the processes of the mind such as learning, memory and emotion. In this context, education is the process of preparing and controlling environmental learning stimuli. Within the new Learning Sciences cognitive neurosciences, together with educational research approaches are being utilised to achieve an understanding of the intrinsic processes that regulate the brain, associated with learning and how this can inform teaching practice.

Draw a concept map summarising the chapter and including all of the information in Figure 3.2. Remember to draw arrows from one concept or term to the other and use linking words or phrases to connect the concepts or terms.

109 Refer to www.medaus.com/p/147.html.
111 McInerney (2005) page 588
112 Piaget (1978)
113 Flavell (1963)
114 Piaget (1979) page 2
115 Vygotsky (1978)
116 John-Steiner and Mahn (1996) page 192
117 Luria (1979)
118 Huttenlocher (1990)
119 OECD (2002)
120 Blakemore and Frith (2000)
121 Thompson et al. (2000)
123 Edan and Moats ( 2002)
124 OECD (2002)
125 Spelke (1994)
126 Dahaene (1999)
127 See Dahaene et al (1999)
128 OECD (2002)
129 Sagvolden et al (2005)
130 Weissman et al (1999)
131 Sagvolden et al (2005)
Entrepreneurial behaviour involves solving problems with novel solutions under conditions of ambiguity and risk. A professional subscribes to a code of conduct that defines membership of a particular profession. For example, doctors, lawyers, architects and other professionals abide by stringent rules for the conduct of their professions which many business entrepreneurs do not experience. This does not necessarily inhibit entrepreneurial behaviour. Innovation and entrepreneurship are particularly apparent in medicine and architecture, for example, with resultant commercial benefits. However, we do not equate all professions with the drive for commercial opportunity as is commonly associated with the business entrepreneur. Indeed, many state and locals schools eschew commercialism and are structured within hierarchical bureaucracies. Nonetheless, Peter Drucker contends that entrepreneurs can be employed in large public and private enterprises provided they are confident of their own abilities, seize opportunities for innovation and capitalise on ideas and change. Drucker uses the term ‘intrapreneur’ to describe such individuals.

The problem with innovative and change-driven professionals, like employees of many public services, is that they “tend to see their mission as ‘doing good’, and therefore as being moral and absolute instead of being economic and relative”. In consequence, Drucker observes that public-services too often maximize their operations rather than optimize them. Hence, they eschew entrepreneurial activity as too risky and defend their systems from change. It is in this environment that many professional educators operate:

I have often maintained that the chief enemy of public education in this country is the public education system itself. Bureaucracies at the federal, state, and local levels have become a significant obstacle to an excellent education for millions of... children. Frequently, these bureaucracies are extraordinarily resistant to change, fiercely protective of their own interests, and incapable of allowing any aspect of teaching or learning to go unregulated.

While it is easy to dismiss such sentiments as conservative ranting, with the continuing drift from public to private school education in Western nations and the growth in home schooling enhanced by the Internet. It is reasonable to explore a more entrepreneurial approach to school education than simply blaming government for failing to increase...
funds. It is possible, for example, that education has shifted, becoming something more than many teachers have traditionally perceived it. For example, the executive director of the NSW Association of Independent Schools, Terry Chapman, suggests:

Parents’ reasons for choosing private schools include “compatible values” to the family, including religious affiliation, discipline, opportunities for extra-curricular activities, and a feeling of being “true partners in the education of their children”\(^{138}\).

This suggests that while some teachers continue to provide the regulated education that dominated the manufacturing era, others respond to a new market need for which the market is willing to pay. This is the essence of entrepreneurial professionalism. While some teachers respond to change, others regard the 20\(^{th}\) century model of school as the one ‘correct’ model. The latter resist the principle of continuous improvement that drives all aspects of contemporary Schumpeterian entrepreneurial economics including education.

Studies show that culture has a lot to do with our attitude towards, and our ability to implement, entrepreneurialism\(^{139}\). Findings of the European Commission demonstrate that attitude, or mindset, influences entrepreneurial enterprise, and that risk aversion and increased regulation inhibit enterprise activity\(^{140}\). A study of entrepreneurial attitude and economic growth across 54 European regions finds that regional differences in entrepreneurial attitude exist such that a relatively high score on entrepreneurial attitude is correlated with a relatively high rate of regional economic growth\(^{141}\). This is important because in the knowledge economy where the welfare of citizenry is dependent upon economic growth while government welfare provision is in decline, our public institutions, including education, need to be responsive to the entrepreneurial challenge in order to benefit the citizenry in changing circumstances.

**PARAMETERS OF OPERATION**

School education is impacted by many lobbies including government, parents, the broader society, political parties, teachers, teacher unions, religious, business and even students. Hence, there are multiple and conflicting opinions about what schools should be and do.

Although Western nations propound freedom, no Western nation permits children to remain unschooled or gives schools the freedom to do as they wish. Western governments regulate schools to ensure a basic education that will provide the future citizenry with choices about their future: a very reasonable tenet of democratic society. Nonetheless, multiple sectors of society seek to influence the content and direction of school education and thereby shape a preferred future. Debates about curriculum content, pedagogy, school regulation, and student behavior, for example, are never-ending in consequence. Federal, state and local authorities thus mandate a core of school education that delivers a broad community consensus.

In this regulated environment, teachers are required to adhere to federal, state and local authority standards which are rigorously assessed. For example, the *New York Times* reports that the Michigan Educational Assessment Program, known as MEAP, is less about applying knowledge than about testing\(^{142}\). However, even in such situations small innovations occur. In order to ensure a satisfactory MEAP grade, the five-paragraph essay has become the taught standard: introductory paragraph, three supporting paragraphs each with its own topic sentence as well as three supporting ideas; and summary paragraph\(^{143}\). However, some schools have developed an essay template with blanks to fill in, and with brighter students at least, development beyond the standard is possible. This is cross checked by government. In order to ensure that students are taught to write an essay appropriately, the Michigan authority awards $2,500 college scholarships to those who pass MEAP which reinforces the significance of the standard with parents who need the money to send their children to college. So while some teachers may refer to the template as “a prison: it stops you from finding a kid's potential”\(^{144}\), it has helped many others to pass the MEAP test and enter higher education.
Thus, entrepreneurial professionalism is not vested in teachers doing their own thing but in being innovative to assist students to achieve what the education authorities determine is the acceptable benchmark. It is no different with professional accountants who might want to change taxation laws but who cannot without convincing the elected government, or professional medicos who might believe an unauthorised drug will benefit a terminally ill patient but cannot prescribe it without government approval. The entrepreneurial professional must always operate within the prescribed standards of the profession and lobby for change in the public arena.

As the transition from the linear manufacturing society to the complex knowledge society gathers pace, entrepreneurship is on the increase in mainstream society and awareness of entrepreneurial activity is encouraged throughout Western society. However, it appears that a significant number of teachers hold onto the values of the manufacturing era devoid of entrepreneurial professionalism. For example, the Consortium for Entrepreneurship Education observes that Western educators do not actively promote entrepreneurship, school administrators do not actively support it, and teacher education does not prepare teachers for it. This is why Learning Management has come to the fore. Learning Management addresses the entrepreneurial professionalism of educators within the parameters of defined standards of education. The development of entrepreneurial professionalism in Learning Managers is the focus of this chapter.

**ENTREPRENEURIAL PROFESSIONALISM AND LEARNING MANAGEMENT**

In the book, *Enterprise education: Connecting schools with the creative knowledge economy*, Graham refers to ten entrepreneurial pedagogical principles that explain and assist the development of entrepreneurial professionalism in Learning Managers. These are: actively seeking change; market positioning; making things happen; defining strategic orientation; committing to opportunity; committing to a process; allocating resources; softening control; rethinking reward; and risking entrepreneurially.

**Actively seeking change**

Entrepreneurship involves change and so is a subversive activity that upsets the status quo by introducing something new or different into the mix. Entrepreneurs see change as the norm and as healthy and exploit it as an opportunity. In the complex knowledge economy, change is constant and Learning Managers are challenged to prepare students to attain centrally set standards by employing innovative and entrepreneurial methodologies. For example, embedding basic skill development in real world activities such as creating a share portfolio enhances student interest and engagement in the activity. Varying the starting time of the school day, for another example, will allow more students to access costly technologies necessary for the development of ICT skills. The entrepreneurial professional actively seeks ways to do things differently and thereby generate potential for continuous improvement in education.

**Market positioning**

All social activity can be positioned in a market. The traditional marketing strategy is to apply the 4Ps of ‘product, price, promotion and place’ to determine the suitability of what we intend to improve or change. For example, if a Learning Manager were to introduce a software program to assist students to learn to read, the educational principles of the software program, the cost, the success and the number of students who use it would be key factors in determining its value. If students show greater progress with the software program and there are fewer students caught in the Queensland ‘diagnostic net’, then the cost of the software is overcome by having more students achieving literacy benchmarks. By way of analogy, the cost of hi-tech laser equipment may be justified in medical procedures because it is faster and less intrusive than a surgeon performing a manual operation even though the surgeon is less expensive initially. However, in the long run the laser may be less expensive because of its speed and accuracy.

The point of market position is to clarify what benefit an innovation makes to the professional process. Does the innovation (in this case a software program) make it easier, faster or more efficient for students to learn? Is it cost
Entrepreneurial Professionalism and Learning Management

effective overall because it means fewer students will require expensive specialised personnel to support their learning journey? Is it able to be adopted on a wide scale and so worthy of development? Where does it sit in relation to other priorities (other children’s needs) that need funding? These are not unreasonable questions because they define the market position of an innovation in the broad context of education

Making things happen

Jerry Kaplan, a Silicon Valley entrepreneur, lists six critical attitudes that entrepreneurs require to make things happen: the belief that they can make a difference (this is why many people go into teaching); passion for making things happen and making teaching fun; unjustifiable optimism (all students in my class will be able to comprehend any written genre presented to them); high tolerance for uncertainty (especially when you are dealing with 25 individual children); urgent patience (a necessity); and genuine concern for other people (wanting all students to achieve maximum learning outcomes). Architects who try new materials and thereby create stronger, cheaper structures demonstrate the ability to make things happen. Day surgery ameliorates the chance of patient infection and reduces health costs and so made a change to medical practice. Learning managers begin the process of change on a small scale by firstly trialling teaching strategies to enhance the learning of their pupils. For example, the RAD strategy used to assist students in the comprehension of written material, has been taught to students. The students learn the strategy and practice it in many contexts to embed it. The students actively monitor their use of the components of the strategy and successfully complete the editing activity. Using this strategy as a template, students can then go on and adapt it to other forms of writing which require editing.

Defining strategic orientation

In The Competitive Wealth of Nations, Porter concludes that no nation is competitive in all areas but in specific industries and industry segments. Toyota specializes in cars, Microsoft specializes in software, Wendy’s specializes in ice-cream. Innovation is not generated by being all things to all people but by being specialized. The entrepreneurial professional specializes in improvements driven by opportunity. In other words, entrepreneurship involves the strategic orientation of available resources.

Many schools raise funds for students to attend school camps by brainstorming fund raising ideas which use the resources of the local community. In another example, Learning Managers may use the basketball court to teach the concept of angles to students.

Committing to opportunity

Committing to opportunity involves taking what opportunities arise rather than planning the ultimate opportunity. Learning managers need to teach to the moment when it presents itself and this sometimes can mean not following a plan prepared in advance. Whereas the manufacturing economy was driven more by planning than opportunity, the creative knowledge economy is driven also by opportunity as well as planning. If an opportunity to discuss mathematics occurs for example in an art lesson, the Learning Manager should seize the opportunity to do so and may discuss the many aspects of shape and design as the students are involved in origami. Teaching creatively allows students the opportunity to provide many open-ended responses in different teaching situations. For example, rather than ask a closed question at the end of a reading passage, have the students write the questions!

Committing to process

Understanding process is often more important than the final product. Drucker observes that entrepreneurs go straight to work without waiting for the Muse to give them a bright idea. For example, with a shortage of classroom computers, one computer technology class arranged to collect discarded computers from the neighborhood and repair them. Not
only was the exercise educative but the class developed a thriving business supplying elementary and secondary schools in the district with repaired computers at a fraction of the cost of new models. The Learning Manager with a good idea cannot expect the world to beat a path to the door. Rather, the Learning Manager beats a path to the world. That is what committing to process involves\textsuperscript{164}.

**Allocating resources**

The major resource of every enterprise is capital. In the case of schooling, the capital is in the teacher expertise and students’ working memory. By teaching declarative knowledge, Learning Managers are building the capability of students. For example, when students are learning to read they are using their working memory to decode text and attain meaning. If all of the working memory is taken up decoding every third word the emphasis will be on surviving the text rather than reading for meaning. If, however, students have a large sight word vocabulary and therefore need to decode only one word in every twelve they read, then working memory can be devoted to decoding that word and generating meaning from text.

**Re-thinking reward**

What do students think warrants reward? Is it when Learning Managers use closed questions and students are required to play the game of ‘guess what’s in the teacher’s head’? Students should be encouraged to display risk-taking behaviour in their learning and not be afraid of getting the one right answer. The use of open-ended questions encourages students to consider alternative views and be alert to the process of problem-solving. Students not only need to have an ‘I can do it’ attitude but also to have a curiosity and reward of enjoying the challenges.

This type of reward system would be very different to a traditional system favouring one right answer and regardless of creativity; every individual receiving a one size fits all education. In the knowledge society the Learning Manager is required to perceive innovation as an opportunity for reward with students being rewarded for their performance on the tasks set. Hence, Learning Managers might conceive of their students as co-venturers in entrepreneurial professionalism.

**CONCLUSION**

The above principles allude to the practice of entrepreneurial professionalism which is driven by passion, “the enthusiasm, joy and zeal that come from the energetic and unflagging pursuit of a worthy, challenging and uplifting purpose”\textsuperscript{165}. Entrepreneurial professionalism can be learned, fostered and encouraged\textsuperscript{166} because entrepreneurship is an attitude\textsuperscript{167}. Attitudes are cultural mindsets. Thus, we might expect that as the entrepreneurial culture of the creative knowledge economy builds, more educators will become entrepreneurial professionals by the very nature of Learning Management. We might expect, for example, that Learning Managers start with small, exploratory ventures involving educational change and use this experience to step up into increasingly challenging and attractive educational arenas as they emerge\textsuperscript{168}.

Entrepreneurial innovation has the potential to alter education radically. For example, James D Miller, a US school teacher, proposes that high schools should outsource grading to India, thereby allowing the recruitment of better teachers without necessarily having to increase salaries\textsuperscript{169}. Although this strikes at the core of traditional concepts of education, given the quest for cost efficiencies in what are termed ‘tax-eating’ services\textsuperscript{170}, the proposal, if it improves the educational outcome of students, could gain momentum. However, it will be necessary to evaluate its impact on the dynamics of education prior to adoption. Nonetheless, it is interesting because what we held as core functions of the manufacturing economy have recently been outsourced, overturned or eliminated in other industry sectors and so we cannot assume that similar changes might not benefit education. We should expect that entrepreneurial professionalism will enhance the education of our children rather than sustain anachronistic traditions of teaching.
The entrepreneurial professionalism of Learning Management is about creating the future. Not the future that is predictable but the future that is barely imagined today and can only be known in the creation of it tomorrow. 

1. Drucker states that the problem with innovative and change-driven professionals, like employees of many public services, is that they tend to see their mission as ‘doing good’, and therefore as being moral and absolute instead of being economic and relative. Should education be moral and absolute or economic and relative?

2. “The chief enemy of public education in this country is the public education system itself. Bureaucracies at the federal, state, and local levels have become a significant obstacle to an excellent education. These bureaucracies are extraordinarily resistant to change, fiercely protective of their own interests, and incapable of allowing any aspect of teaching or learning to go unregulated.” Is this an accurate reflection of contemporary school education? Give examples to support your argument.

3. In what ways has education shifted, becoming something more than many teachers have traditionally perceived it?

4. Donald Kuratko observes that it is people, not institutions, who create economic wealth and this is limited only by the boundaries of each individual’s intelligence, imagination, energy, and daring. What do you imagine might improve school education? Be daring but realistic.

5. In what ways does the entrepreneurial professionalism of Learning Managers differ from the professionalism of teachers? Draw up a table to contrast the two perspectives.

1. Using the web, explore the ways entrepreneurialism has altered the dynamic of contemporary society.

2. Using the web, discover the potential of entrepreneurial innovation to alter school education.

3. Using the web, find two articles about entrepreneurial activity that you think could be related to school education and explain the potential impact of these.

4. What is meant by professionalism? Explore the web to find examples of professional innovation and change.

5. Explore the web to find examples of entrepreneurial education. Consider whether these examples contribute to an understanding of Learning Management.
132 Sexton and Upton (1984)
133 Drucker (1985)
134 Drucker (1985) page 180
135 Drucker (1985) page 180
136 Berkowitz (2001)
137 Estimated in 2000 by the US National Catholic Register, a conservative weekly, as between 1.2 and 1.6 million in the USA. Dr. Brian D. Ray, president of the National Home Education Research Institution in Salem, Oregon, estimates 3 million students will be home educated in the USA by 2010.
139 Porter (1990)
141 Beugelsdijk and Noorderhaven (2002)
142 Winerip (2005)
143 Winerip (2005)
144 Winerip (2005)
145 Gartner and Shane (1995)
146 Thorton (1999)
147 Consortium for Entrepreneurship Education (2004a)
148 Graham (2005)
149 Stevenson (1983)
150 Stevenson (1983)
151 Stevenson (1983)
152 Stevenson (1983)
153 Stevenson (1983)
154 Stevenson (1983)
155 Smilor (2001) page 129.
156 Drucker (1985) pages 27-28
157 Kotle, Armstrong, Saunders and Wong (1999)
159 Knight, Paterson and Mulcahy, 1998
160 Porter (1990) page 9
161 Stevenson (2000) page 3
162 Schumpeter (1939) page 73
163 Drucker (1985) page 34
164 For a detailed description of this program, see Consortium for Entrepreneurship Education (2004b).
165 Smilor (2001) page 5
166 Kuratko (2004)
167 Young Entrepreneurs Organisation (1999)
168 McGrath and MacMillan (2000)
169 Miller (2005)
170 Judd (2005)
171 Sarasvathy (2001) page 21
Teaching Students with Special Needs

Bruce Allen Knight

WHAT DOES SPECIAL NEEDS EDUCATION MEAN?

“It is clear that in an international setting the use of the term ‘special educational needs’ leads to confusion because it means different things for different countries.” For this chapter, the term will be used to include students with difficulties in learning, students with disabilities, students whose first language is not English and those who are disadvantaged and thus require resources (e.g., personnel, materials, etc) so that they access the curriculum more effectively. Inclusive education is today more broadly defined as a reform that supports diversity amongst all learners. Its aim is to “eliminate social exclusion that is a consequence of attitudes and responses to diversity in race, social class, ethnicity, religion, gender and ability.”

THE TYPICAL CLASSROOM

You are teaching a year six class in a state school. Students in your class include three very able students (probably gifted); a group of six students who easily complete all subjects; a core of fourteen “average students” who can usually complete assigned tasks with minimal assistance; four students with learning difficulties who struggle with all tasks and need constant teacher assistance; one student with a learning disability who cannot read; and one who has been ascertained who generally needs a teacher aid to complete any work. Of these students in this “typical” class, two exhibit behaviour problems such as non-conformity and aggressive behaviour to their peers; three come from homes where English is a second language, ten are from single parent homes and one student who is clinically depressed and requires medication.
The Rise of the Learning Manager

Using this context, Ainscow, Booth and Dyson challenge Learning Managers to enhance students’ development in three overlapping ways “as reducing barriers to learning and participation for all students; as increasing the capacity of schools to respond to the diversity of students in their local communities in ways that treat them all as of equal value; and the putting of inclusive values into action in education and society”\textsuperscript{175}.

The classroom described above is indeed typical of most classrooms in Australia in the new millennium. The degree of difference would depend upon where the classroom is situated. Learning managers are engaged in educating students with special needs in their classrooms. Of course the Learning Managers need to be flexible to cater for the diversity of learners’ needs through such things as appropriate programs (See Chapters 9 and 10 for ‘special needs considerations’), explicit pedagogy, organisation, resources and other adaptations that are necessary. Every individual has specific learning needs which the following activity demonstrates.

Write down your ‘special needs’ as a tertiary learner with respect to:
1. Learning style: Would you rather listen to a lecture, participate in a tutorial group, engage in an on-line chat or read the material yourself?
2. Assessment: Would you rather write an essay, complete a portfolio, or do an oral or a written exam?
3. Learning: How do you study best? Cram, note-taking, highlighting, drawing concept maps, generating possible questions, working with a partner?
4. Individual characteristics: Strengths, preferred time of day/night to study, preferred learning group, what motivates you, where do you do your best work?
5. What else is unique about your learning style?

This activity very clearly shows that we are all individuals who have special needs regarding our learning. You can imagine your stress if you prefer to work on-line and you are forced to work in a group. How well would you manage if all your assessment was done through exams where you don’t perform as well? What does this mean for you as a Learning Manager?

Ainscow outlines what he sees as the elements of special needs education. He sees special needs education as a process which is about how to learn with and from difference\textsuperscript{176}. Special needs education is concerned with the identification and removal of barriers and is about the presence (where), participation (quality of experiences) and achievement (outcomes) of all students. The emphasis is on learners who are at risk of marginalization, exclusion or underachievement.

Give examples of students and their behaviours in these categories of being marginalized, excluded and or underachieving.

There is a need to guard against what Ainscow labels ‘low leverage changes’, suggesting that there is only a change in the ways things looks rather than the way they work. Of course what is required are significant changes in thinking and practice\textsuperscript{177}. Special needs education therefore means learning centres/schools supporting learners’ diverse needs. This will vary from nation to nation and from setting to setting. In the same way we don’t want teachers to treat and or blame students (deficit model) and suggest that there are going to be problems because this group comes from a high number of single parent families, because of the language spoken at home, because of differing racial background, etc.
“Many of the barriers experienced by learners arise from existing ways of thinking”  
(Ainscow, 2005, p. 121).  
Discuss the meaning of this statement.

**STUDENTS’ RIGHTS**

Advocates of special needs education state that it is the right of every child to be accommodated in schools “regardless of their physical, intellectual, social, emotional, linguistic or other conditions” \(^{178}\). Paragraph two of the same statement goes on to discuss the ‘rights’ of every child to an equal education:

We believe and proclaim that: every child has a fundamental right to education, and must be given the opportunity to achieve and maintain an acceptable level of learning; every child has unique characteristics, interests, abilities and learning needs; educational systems should be designed and educational programs implemented to take into account the wide diversity of these characteristics and needs; those with special educational needs must have access to regular schools which should accommodate them within a child-centred pedagogy capable of meeting these needs; regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society, and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire system.

All students have the right to an education. However, for all students to achieve maximum learning outcomes, this needs to be addressed at the school/systems level rather than at the ‘what is wrong with this child’ level.

There are many complex issues for the Learning Manager as she attempts to manage the learning of students. Read the following vignette:

_Pucak is a ten year old boy newly arrived into Australia with his refugee family from Iraq. He has settled well into your class although, because English is not his first language, he is taking up a lot of your teaching time. Academically, Pucak is having difficulty but he is learning. He can communicate but has no friends in your class although he does ‘hang out’ with younger kids from another refugee family. His family are very thankful for him getting an education._

What advantages and disadvantages do you see for each of the following in this vignette:

1. Pucak  
2. Pucak’s classmates  
3. Pucak’s parents  
4. Parents of Pucak’s classmates  
5. Pucak’s teacher  
6. Other teachers in the school  
7. School principal  
8. Wider school community  
9. General community

You should consider such issues as moral and social justice, individual differences, and a wide range of abilities.
SCHOOL POLICY

The important considerations then are how will teachers firstly cater for students’ differences and secondly teach skills that will enable students to become a part of the community. Because the education of all students concerns the whole school, it is critical that schools have a clear vision which is perceived and supported by staff. School administrators and Learning Managers have the opportunity to influence the belief system and attitudes of the school in which all students participate as contributing members of that community. It is important to implement and encourage policies that view diversity as an asset for schools. Highly effective schools for students provide environments which are inclusive of students’ values, norms, and traditions. In some ways this involves a group’s preferred way of understanding and interacting but equally important is the ability to recognize the vast diversity amongst learners and thereby not stereotyping them.

Classroom applications: Philosophy

It is easy to speak about including students with special needs but transferring the ideals into practice is much harder. Teachers need to manage children, interact with other professionals, administer the learning place and understand the institutional bureaucracy currently labeled as an education system. Generic skills needed include communication and flexibility (of individuals and their development). It is essential that students’ individual differences are acknowledged and recognized as this recognition leads to self-fulfillment and personal growth.

For special needs education to work effectively, there are basic tenets that must be accepted. These include:

- As the Learning Manager you take responsibility for managing students’ learning. This is not a deficit model where students are blamed if they are not learning
- Work with specialists to generate solutions and actions taken to educate students
- Teachers and students benefit by being involved and having an awareness of solving all learners’ problems
- A necessity for Learning Managers to use a range of teaching and organisational strategies to meet the needs of all learners in their classes.

A constructivist view of learning (e.g., Vygotsky)\textsuperscript{179} is based on the principles of each individual forming their own representation of knowledge, learning occurs when the active student discovers a deficiency in their knowledge or an inconsistency between knowledge representation and their experience and interaction is occurring within a social context. A constructivist notion, (specifically exogenous constructivism)\textsuperscript{180} has the Learning Manager using skills working within the student’s zone of proximal development. Control is therefore not centralized within the Learning Manager but rather the Learning Manager manages, encourages and teaches each individual to use their skills to construct a meaning. This philosophy encourages a notion of harnessing the individual’s abilities and skills thus empowering students.
Classroom applications: Practices

Why is it that some Learning Managers are spectacularly successful in teaching all of their students? The Learning Manager is the critical variable as in any classroom they need to reflect on how things can be done, what changes need to be made and how the changes of catering for the varied needs of learners with special needs can be made. Translating philosophy into practice means behaving in certain ways and your responses to the following questions will influence the ways in which you manage the learners in your classroom.

1. What is my attitude toward the students in my class in general?
2. What is my attitude toward my colleagues?
3. Do I believe that all students can learn? Why?
4. Do I support all learners? How?
5. Do I learn from interacting with different individuals in my class?
6. Do I believe my teaching can make a difference in the students’ lives? Why/not?

Apart from these important issues, there are a number of other areas that are central to learning and these will be now be considered in turn.

Physical environment

The school’s physical environment conveys a strong indicator of meeting learners’ needs. Does the environment reflect and respect the different ways in which students learn. Classroom arrangements should enable students to work individually and collaboratively using different resources. The school policy needs to allow Learning Managers to focus on establishing learning environments in which students can achieve.

Social-emotional environment

It is important that a social climate be established which engages students to participate as a community of learners and one in which support is consistent for all learners. There is a need to establish an environment that supports students in their role as a learner. It is based on what schools value and what they stand for and are crucial to success. The Learning Manager’s role is to value each individual for their contribution to the classroom/learning situation. Sawyer, Arney et al (2000) report that 14% of children and adolescents (to approx 24% before age 18) have a mental health problem at any time, and therefore it is important that schools promote healthy, stable environments for students.

Learning

Senge proposed five principles that organizations need to practice to become learning organisations. These principles are:

1. Personal mastery (a good self-knowledge of curriculum, development and teaching approaches).
2. Reflection — this skill is important for the Learning Manager as she develops a critical, self-reflective perspective of current practices. Risko, Roskos, and Vukelich suggest that reflection creates the foundation for making rational decisions by providing Learning Managers with the opportunity to make links between theory and practice and by so doing come to deeper understandings about their beliefs and practice.
3. Shared vision for the organisation, making it value-driven.
4. A commitment to team learning whereby students, Learning Managers, specialists and parent/carers cooperate so as to encourage the development of students’ potential.
5. System thinking, so that with the philosophy of inclusion it is concerned with all students, not just particular groups of students. All students should necessarily belong to the social, academic and cultural community.
Explicit teaching

Good teaching applies to all learners, regardless of whether they for example have a disability or come from a different culture. It must be emphasised that direct, explicit teaching of declarative knowledge is necessary for all learners. Students with special needs do not develop skills incidentally, but rather need to intensively learn skills so that they can be applied in new learning situations. The Learning Manager works with students at their instructional level (the level at which students need some form of assistance to be able to progress) and thus within each student’s ‘zone of proximal development’. The instructional level will be different for individuals and be dependent on the student, the learning context and their prior knowledge. Students need to be actively involved in the learning process with the amount of teacher-student interaction necessary to promote active student involvement varying with each individual and with differing classroom situations. The authentic assessment of students is an essential component of teaching. The use of authentic assessment indicates that the Learning Manager is adapting teaching methods and content to meet the needs of learners and providing them with relevant feedback. Instruction using a variety of strategies needs to be flexible so as to respond to individual needs.

Effective teaching practices in general are suitable for teaching all students, including those with special needs. Such components include:

- Being sensitive to students’ academic and emotional needs;
- Making the intent of activities clear to students;
- Negotiating goals and expectations with students;
- Selecting appropriate learning content to suit students using task analysis (that is, breaking down the components of a task into subtasks);
- Using a wide range of teaching approaches;
- The use of contingency shaped learning where positive rewards are used to reinforce learning;
- Explicitly teaching strategies to students;
- The use of guided practice — the Don Bradman Effect. Learning Managers often have to present content to students that are outside their interests. It has been demonstrated that when students are interested in a subject that they are better prepared to relate to the information being presented. For example, to become the world's greatest ever batsman, Sir Donald Bradman had to undergo many long hours of practice to become a great batsman and he was self-motivated to do so. The task for Learning Managers is to firstly generate work that is meaningful to students and secondly help students to be self-motivated;
- Modifying materials and adapting instruction; and
- Monitoring teaching and learning programs.

CONCLUSION

The number of children with special needs is not going to diminish in our classrooms. In fact when one considers the increased number of infants being born with AIDS, the increased numbers of infants affected by foetal alcohol syndrome, foetal tobacco syndrome, the survival of premature infants, longer life spans for suffers of the likes of muscular dystrophy, the increasing number of students suffering mental health problems, and the cultural and social complexities of students, then catering for these children’s special needs is going to be a priority in regular classrooms. The challenge for Learning Managers is to have an awareness of a multitude of strategies that can be used to educate all children. As you gain experience in dealing with many different children, so too you will begin to feel in control and better able to cope with teaching all children.

Knight asked experienced Learning Managers what advice they would offer to others about how to successfully teach children with special learning needs. The following summarises their advice:
Teaching Students with Special Needs

- Find out as much as you can about the child. Do some background reading and find out the expectations (of parents, etc) so that you can effectively meet students’ needs.
- Make an attempt to understand and respect different students’ cultures.
- Be consistent and positive with students.
- Establish a routine for the whole class.
- Be well organised.
- Let students know your expectations.
- Communicate with the major stakeholders regularly.

Factors identified which either facilitate or hinder the education of students with special needs include “legal frameworks, funding models, assessment arrangements, school structure, class size, the use of individualized teaching programs, the involvement of additional teachers and aides, teacher training, parental involvement and co-operation with other services. Taken together, these issues present a considerable agenda for reform”191.

Useful resource

Disabilities Services Support Unit- Queensland Department of Education and The Arts

The DSSU is a branch of the Qld Department of Education and the Arts whose purpose is to “enhance and facilitate inclusive education practices for students with disabilities” (Education Views, 15 July, 2005). The roles of the unit include building knowledge and skills, promoting evidence-based practice, leading in inclusive education, maintaining partnerships and aligning policy and practice. The web address (http://www.learningplace.com.au/en/dssu) contains disability information and professional support for teachers and other specialist staff.

Explore one of the categories on this website (e.g., disability information and support). Explain how this information could support a Learning Manager.

172 OECD (2005) page 12
173 UNESCO (2001)
174 Ainscow (2005) page 109
175 Ainscow, Booth and Dyson (2006) page 297
176 Ainscow (2005)
177 Ainscow (2005)
178 UNESCO (1994) page 1
179 Vygotsky (1978)
180 Moshman (1982)
182 Sawyer, Arney, Baghurst, Clark, Graetz and Kosky et al (2000)
183 Senge (1990)
184 Risko, Roskos, and Vukelich (2002)
185 Nes and Stromstad (2006)
186 Knight and Knight (2004); Knight, Paterson and Mulcahy (1998)
187 Knight and Rauch (1999), Vygotsky (1978)
188 Knight (1994, 2005)
189 Knight (2005), Knight, Paterson and Mulcahy (1998)
The Rise of the Learning Manager

190 Knight (2005)
191 Ainscow (2005) page 133
CHAPTER 6

E-Learning: A Catalyst for a Futures Orientation

Paul O’Neill and Bruce Allen Knight

Learning outcomes
By completing this chapter you, as a developing Learning Manager, will be able to:

1. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   - Examine and generate scenarios for the future of education
   - Identify and utilise innovative solutions that inform the practice of Learning Manager
2. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager
   - E-Learning

Information and Communication Technologies (ICT) have evolved at a rapid rate over the last 20 to 30 years. Educational use of ICT has also changed as new inventions forge new pathways for learning opportunities. The term ‘e-learning’ has emerged as a description of the work teachers will do to combine new technologies into learning design and is the force behind what educators now determine as ‘thinking digitally’. An important skill for the learning Manager is to develop the pedagogical strategies that ensure that learning is at the centre of any ‘e-learning’ activity.

Our society now engages with a growing number of highly sophisticated ICT based technologies. Teachers and knowledge workers often struggle to remain current with the use of these technologies; however the role of these people is not the development of these technologies, it is in the deployment of them to support learning. Just as teachers didn’t generally develop the text books that they used in their classrooms they should not be expected to be experts in digital technology. What teachers need to be experts in is the instructional design strategies that inform learning with ICT so that the learning is the focus rather than the technology.

In this chapter we will explore some of the factors contributing to a modern day classroom that uses ICT as an integral part of learning design. We will explore the possibilities that ICT bring to learning and how Learning Managers and knowledge workers need to design learning to unleash the power of ICT. We will conclude the chapter by looking at some of the issues that form limitations to the uptake of ICT in education and some resources that may be useful to incorporate in planning for ICT integration.

THE DEVELOPMENT OF E-LEARNING IN SCHOOLS

‘Computing’ as it first emerged in schools in the 1970s amounted to crude programming courses in languages such as ‘Fortran’ and ‘Basic’. Schools could rarely afford their own mainframe computers so they would often send stacks of practice programs created by students and etched on punch-cards to a company or a larger school that could afford the technology. Printouts of the program runs would be returned to the schools sometimes weeks later for a delayed analysis of the success or otherwise of the program. Prior to personal computers, ICT was a paper and pen exercise.

Such was the beginning of ICT in schools in Queensland in the 1970s. By the late seventies, simple computer games emerged alongside word processing software. Apple ® began the infiltration into schools, and many teachers dreamed of
having an Apple® computer in their classroom. One of the earlier problems was the cost and access to what emerged as very simple programs and the need for teachers to spend the time to learn how to use the programs. Interestingly, the access to software and the lack of teacher expertise meant the computer often stayed under a cover at the back of the classroom. Technical issues of printers, printer ink, software glitches and storing and saving information often plagued the operation of computers. The early road into technology was not a pleasant experience for many teachers, potentially forming a barrier to the future exploration of this medium as an educational tool.

The evolution began to follow the lead of software companies who were determined to create software packages that would take the place of instruction and as such proposed to revolutionize learning. Programs were developed such as Where in the world is Carmen San Diego?®. This was initially a program for teachers to use by printing out work sheets and activities for classrooms. A later evolution of the program became more interactive as the technology developed and the user could enter a journey of discovery in search of Carmen. Children could lose themselves in this program and become quite involved; however computers began to be used as rewards and as child-minders rather than critical educational tools.

Later, software packages became more complex and deeply involved and certain strategy games were known to fill six or eight floppy discs. Teachers became less likely to use them as they became more developed, yet unwieldy, because they were ultimately more difficult to navigate through and to find specific information. Termed ‘software with the works’, these ‘games’ that had been developed to replace a traditional educational learning experience, had in fact grown to become software monsters that teachers were becoming less likely to use. Teachers were not looking for programs that replaced the teacher; they were looking for software that they could integrate into their lesson design.

The next phase of ICT development has now emerged with the growth of digital content. This is essentially a range of digital resources that can be stored, catalogued, searched for, used in learning experiences and shared with other teachers. As technology advanced, educators were concerned with some of the problems that were emerging. Classrooms were starting to explore the World Wide Web and children were beginning to access material from varied sources. Web sites that were used in instruction were sometimes unreliable and often disappeared from the Web. Teachers could find a web based resource, design learning experiences around it only to find that the site could disappear. Authenticity of material also became an issue as did access to material relevant to local contexts. This was particularly significant for Australian circumstances. Searching for information began proving a vastly more difficult exercise as the Web continued to grow. Copyright problems of utilizing web-based text and images also emerged as problematic once teachers began building their own web material. Access to digital content was required so that authorized access to certain content, in particular images, text and visuals could be made available to teachers.

Digital repositories became a solution to house suitable content that schools could access. Organizations such as The Learning Federation, an Australian and New Zealand initiative have begun developing digital content in response to the educational needs of contemporary classrooms. ‘Learning Objects’ have become popular since the launch in Australia in 2003. Learning Objects are digital objects, usually multimedia devices that support the learning needs for a specific content area. They are designed to teach or demonstrate a specific ‘chunk’ of information. They are often interactive and are designed for small, discrete learning opportunities rather than the bigger picture outcomes that earlier software products tried to achieve. Learning Objects deliver the basic content information and leave the design of learning to the teacher in how they deploy the learning objects or digital content.

Much information is now available on the internet and it can be reproduced freely without permission (‘copyleft’ material). What implications does this have for learners and the Learning Manager?
Further growth and software development in the field of communication technologies has seen the development of many innovative communication tools. Contemporary learners are used to new technologies such as mobile phones and computer aided games. They are also now avid users of online chat facilities and text messaging, web logs and online interactive games. Prensky refers to these people as the ‘Digital Natives’, the generation that has grown up digital. This is the generation that thinks about the digital opportunities available to them as possible solutions to modern day problems.

Advances in technology have provided many new opportunities for the contemporary classrooms that require knowledge workers and Learning Managers to re-engineer educational instruction towards a new way of learning incorporating new technology. Salmon refers to this as ‘new learning’ and contends that contemporary learners are not that different, they have just been exposed to different modes of communication. What is important for knowledge workers in a modern teaching and learning environment is to ensure that modes of communication technologies relevant to contemporary learners are incorporated in learning design.

As this chapter goes to press, the ICT tools discussed will immediately make this text appear outdated. However as you will read in a later section, the underlying principles behind learning design remain current even as the technology grows and changes around it. In the next section, you will read about some of the e-learning opportunities available to classroom teachers today.

CURRENT E-LEARNING OPPORTUNITIES

Education and the teaching profession are caught in the interplay between science and technology that is referred to in recent policy documents as the ‘digital evolution’. In this changing environment, it is important for teachers and schools to evolve. New technologies require teachers to re-think what they do with the many new software products and web based opportunities that exist.

In this section we will look at some current education market driven initiatives that provide support for teachers to deliver ICT based learning opportunities. We will begin by looking at the Learning Place, a Queensland Department of Education and the Arts division that supports services to assist teachers to access ICT for learning. We will also look at the Le@rning Federation, a national organisation supported by all of the State Education Departments to develop and support teachers in the access to digital content for learning. The Learning Place is a division of the Queensland Department of Education and the Arts that has become a complex network within the department to provide access to web based material, communication tools, online courses, resources and sharing facilities.

Figure 6.1 The four domains of The Learning Place

47
The Learning Place incorporates a number of different focus areas, such as:

**Online resources:** *The curriculum exchange* is a vast storage house for electronic versions of teacher generated resources, ideas and planning materials. The Learning Federation digital content (see Figure 3.1) is also accessed through *The curriculum exchange* within the Learning Place.

**Online-learning:** Access to ‘ready to go’ courses or course development ideas is available. The online Learning Management system Blackboard 6® is also available and stores courses developed by teachers on a central server, providing a secure and reliable online management system.

**Communication Tools:** A growing range of communication tools are available. Project rooms can be established for school based projects and may include forums and chat rooms. A range of community developing tools also exist such as: collaborative online projects; web logs (blogs); general online projects. These tools support a range of online teaching strategies such as: book raps, movie raps, virtual field trips, blobal youth forums, travel buddies.

**Communities:** A growing connected network of teachers and education administrators is made possible through various online professional learning communities and professional networks. These communities can connect using communication tools or simply be connected by their professional online community site. The new range of tools also develops new possibilities for developing broader online communities for children in classrooms.

**Support Network:** Additional support for teachers in schools is provided by Learning Place mentors. Online course delivery is managed by Online Coordinators and an online and dial in support network is provided for users of the Learning Place tools.

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**Find out about the four domains of the Learning Place. Go to the Learning Place Home page (see Figure 6.1). On the left hand menu go to:**

1. **Online-learning:** Go to *Ready-to-Go Courses*. Peruse the course descriptions of the range of ready-to-go courses accessible to members.

2. **Communication:** explore the *Comic Chat Room* page. Find out what Comic Chat is about and what it can be used for.

3. **Communities:** Go to *Professional Learning Communities* (PLC) and search for a professional community in your location that exists in an area that you are interested in.

4. **Online Resources:** Go to *The Curriculum Exchange* and explore the resources available to teachers from this page.

The *World Wide Web* is a vast resource that provides access to content that is both highly suitable and equally unsuitable. Certain elements of the web are extremely unsafe for students to gain access. Chat rooms and online forums have potential to be devious playgrounds and access to unsolicited and inappropriate content on the web poses difficult problems for teachers to manage. The *Learning Place* provides many online community building tools that teachers can use safely with classrooms. Communication tools such as chats and forums are restricted to registered users or those
who are nominated by the administrator of the event. Teachers as administrators need to be in the chat room for the room to be open and students can only post to forums once the administrator has approved the input. This limitation provides a secure and safe online environment for students to interact within. Online resources, mostly web sites listed in the Edulist or Hot Topics within the Curriculum Exchange have also been checked for content. Links out of web sites have also been checked to satisfy the requirement that these recommended sites do not lead students to unsuitable content. These checks and securities allow for a safer and controlled use of web based tools and allows students to access and create online communities and resources.

Figure 6.2 The Learning Federation

The Le@rning Federation™ (www.thelearningfederation.edu.au, TLF) is a national association that draws together all of the education departments from each of the states in Australia and New Zealand (see Figure 6.2). TLF’s role is to create online curriculum materials and the necessary infrastructure to ensure that teachers and students in Australia and New Zealand can use these materials to widen and enhance their learning experiences in the classroom. Known as ‘digital content’, TLF has developed an elaborate range of digital resources that includes images, audio, movies, and learning objects.

Figure 6.3 displays a static representation of one of The Le@rning Federation™ learning objects. This object comes from the Science Key Learning Area under the Energy and Change Curriculum strand. This object is a simulation; an interactive application that allows the learner to model or role-play in a scenario. In most cases simulations enable the learner to practice skills or behaviours in a risk-free environment.

Figure 6.3 Give me a brake, Science 1 Learning Objects, The Learning Federation © sourced from Education Queensland Curriculum Exchange

This learning object tests the ‘braking ability’ of a range of vehicles under a number of conditions. There are different vehicle categories, road surfaces, tyre conditions and weather conditions as variables the participant can manipulate. The
The Rise of the Learning Manager

An instructional designer could plan and integrate a range of experiments using this device and make some predictions and test assumptions about what may happen given these conditions. The ability of this learning object to be used for numerous purposes (reusability) can be considered by comparing potential applications at four curriculum levels in a school environment.

Table 6.1 provides scenarios that describe a practical analysis of how a learning object can provide opportunities for reusability with children across a range of levels.

**Table 6.1 Descriptions of a range of scenarios in the use of the Le@rning Federation ™ Learning Object ‘Give me a brake’ ©**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scenario one</strong></td>
<td>This learning object could be used to explain to year 2/3 children in a road safety or bike safety context how trucks take a long time to stop and sometimes cars find it difficult to stop in certain conditions. This simulation could be used to demonstrate this fact in a safe environment without risking a real life experiment. It would sit as a small component of a larger unit of work.</td>
</tr>
<tr>
<td><strong>Scenario two</strong></td>
<td>A year 4 Mathematics exercise in graphing could use this learning object to produce the data to do comparative graph studies of these five vehicles in varying conditions. This could be a real life representation of mathematical data that would contextualise the graphing process for the learner and again sitting within a larger body of mathematics work</td>
</tr>
<tr>
<td><strong>Scenario three</strong></td>
<td>A year 11/12 road safety or beginner driver course, a student could use this learning object to develop awareness of the reaction time and stopping time required in different conditions. This could provide an opportunity for the learner to reinforce the declarative knowledge (McREL, 2003) around this process prior to practical road tests and could be a component sitting within a larger unit of work such as a Roadcraft ™ training program</td>
</tr>
<tr>
<td><strong>Scenario four</strong></td>
<td>A year 12 Physics focus could use this learning object to demonstrate physically how a particular equation calculating and comparing the relative inertia of a range of vehicles of different weights in different circumstances. This would be an opportunity to compare data across different examples and contextualise the formula into a concrete model using the learning object.</td>
</tr>
</tbody>
</table>

While this particular digital learning object ‘Give me a brake’ was designed for level 6 or upper secondary level outcomes, all of the examples outlined in Table 6.2 use this object to provide examples of the specific learning outcomes each scenario attempts to achieve. The ‘Give me a brake’ digital learning object comes with some related tasks; however the notion of reusability in those set tasks is limited. Reusability can be achieved by applying creativity and innovation to the design of learning by seeking alternative uses for the application of the learning object. As scenarios in Table 6.1 identify, the multimedia designer who created this learning object may not have imagined that this product could be used for such a broad range of learning opportunities.

**Table 6.2 The educational uses of software**

<table>
<thead>
<tr>
<th>Software</th>
<th>Used for</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Word</td>
<td>Word Processing</td>
<td>Document preparation and development</td>
</tr>
<tr>
<td>Microsoft PowerPoint</td>
<td>Presentations</td>
<td>Building slideshows</td>
</tr>
<tr>
<td>Microsoft Excel</td>
<td>Spreadsheets</td>
<td>Data management</td>
</tr>
<tr>
<td>Inspiration</td>
<td>Mind mapping</td>
<td>Concept Mapping</td>
</tr>
<tr>
<td>Kidspiration</td>
<td>Mind mapping</td>
<td>Concept mapping for early childhood</td>
</tr>
<tr>
<td>FrontPage</td>
<td>Web Authoring</td>
<td>Creating web pages</td>
</tr>
</tbody>
</table>
To attempt to outline all of the e-learning opportunities open to teachers in the current environment would be difficult. We have briefly discussed the use of online communication tools and digital content. There are of course many other opportunities that we will now summarise briefly:

**Software:** Computer software provides a practical interface with computers that is usually about the user processing, presenting and storing knowledge and information. Software can be useful for many different activities. Table 3.2 lists some common popular software for personal computers and the ways in which teachers use the software.

**GIS Technology:** Geographic Information Systems (GIS) have developed recently into extremely useful educational tools. Relying on enhanced satellite technology, these systems allow students to explore recent images of the globe. This technology has become more accessible since the release of Google Earth™, a free software program that allows global navigation. At the roll of a wheel mouse a user can navigate from the outer space view of the globe to within hundreds of metres of the surface of the earth. Later versions of the software allow you to capture movie grabs of user navigated earth searches.

**Messengers and Meetings:** Communication tools allow for synchronous and asynchronous interaction. Combining telephone and internet technology provides tools such as data and video conferencing. Data Conferencing allows for remote users to connect and share and discuss similar issues at the same time. Users can interact with a shared white board or have their own whiteboard with individual tasks on them. Another feature is the capacity to share desktops, where one user can create a sample of work on a particular program on their computer and share this with other users on their computers. Such interactions require students to engage in meta-level manipulation of literary symbols whereby the tools are used as advanced mechanisms to support the connection of people for meetings and sharing or collaborating. Similarly, mobile technology using SMS is another form of connecting people remote to each other, as does email. Some schools are beginning to use this technology in the design of learning experiences. As a tool of the digital native, it is important that students understand the broader possibilities of this communication device.

**Sharing and Searching:** Berners-Lee, Hendler and Lascilla acknowledge that contemporary learners see the web as important, not solely for what they can get out of it, but more importantly for what they can put into it. Hence a Digital Native is more likely to want to publish and share their work or digital content through publishing tools or web pages. Publishing software and web facilities are becoming more common place. Shareware is also becoming quite popular as people share music, video, images and programs online. Search engines continue to improve and provide more interesting and innovative ways to refine and revise searches in order to get through a vast quantity of information.

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**Group Activity**

Design a Learning Experience in your teaching area: Early Childhood, Primary or Secondary using a learning object.

1. Go to the Learning Federation Home page (see Figure 6.2) and select Showcase.
2. Choose a learning object on this page.
3. Download and run the learning object and in your group.
4. Discuss some different ways you could engage this learning object in your area.
   - What learning possibilities does this learning object trigger? Remember it doesn't have to be work on the computer.
5. Brainstorm some different possibilities as well.
The Rise of the Learning Manager

A product that brings searching and sharing together is Wikipedia™ (www.wikipedia.org, see Figure 6.4). This is a free online encyclopedia that anyone can edit. Users can search for information and if they believe they have more current information or further examples to add, they can update the content.

![Wikipedia](image)

**Figure 6.4 Wikipedia**

Another version of this software known as a Wiki, is a type of website that allows users to easily add and edit content and is especially suited to collaborative writing. Web logs or Blogs are also similar web based pages that allow for uploading, editing, sharing and online collaboration. Blogger.com™ provides a free service to users to establish personal blogs.

Go to blogger.com, a free blogging web site and try the following exercises:

1. Search for a blog in an area of your interest, e.g., health, fitness, sport, music, etc
2. Create an account and develop your own blog. This could be a blog about travel, a topical issue, sharing ideas, gathering group opinions, etc.

**THE ROLE OF ICT IN LEARNING**

The many tools and products available to the teacher using ICT makes choosing the tool for the job a difficult decision. Robyler believes that the first step in design with ICT is to determine the relative advantage of using the ICT tool.
Learning as a digital experience can be a different challenge for the teacher as instructional designer and often requires the Learning manager to see what happens first, then asking questions later. Siemens determines that learning with new technologies is very different from previous types of learning and discusses the term ‘connectivism’\(^\ref{207}\). He describes connectivism as a ‘learning theory for a digital age’ defining it as an integration of principles explored by random interconnecting networks and complex self-organization theories. In digital environments, learning is a process that occurs often unbridled within new and rapidly changing environments — not entirely under the control of the individual. He defines learning in this context- as actionable knowledge that can reside outside of ourselves, for example within an organization or a database that is focused on connecting specialized information sets. He states that the connections that enable us to learn more are more important than our current state of knowing. By this he suggests that learning theories are concerned with the actual process of learning, not with the value of what is being learned. In a networked world, the very manner of information that we acquire is worth exploring. The need to evaluate the worthiness of learning something is a skill that is applied before learning itself begins. Carr expands on this theory in making comparisons between ‘connected’ and ‘unconnected’ classrooms\(^\ref{208}\). The best way to describe the difference between these classrooms is to outline the limited scope for new opportunity in an unconnected classroom.

Figures 6.5 and 6.6 graphically outline the outstanding differences between a connected and an unconnected classroom. Linking to Siem’s connectivist theory, this image of a connected classroom presents a model that acknowledges the diverse shifts in society where learning is no longer an internal, individualistic activity\(^\ref{209}\). Connecting to the world in new and varied ways is no guarantee that learning will occur and in this context still requires the Learning Manager to define and plan meaningful experiences that engage learners in the building of knowledge within and around these connected environments.

**Figure 6.5** The unconnected classroom\(^\ref{210}\)
WHAT POSES LIMITATIONS TO THE E-LEARNING MANAGER?

E-learning can have many faces and can range from combining learning opportunities that are totally online, to a blended delivery of online and face to face instruction. Learning experiences can be ‘asynchronous’ where students can access online content at their own time and place or the activity can be ‘synchronous’ where students need to be online at the same time. Candy (2004) discusses the ICT applications we are exposed to today as tools to provide us with ‘windows’ and ‘mirrors’. By this he means ‘windows’ to the world and ‘mirrors’ to look inwardly at ourselves and our own personal world.

There has been much discussion about the educational benefits of ICT and the role they play in teaching and learning. Much of the discussion follows a chicken and egg routine in trying to determine whether it is the teaching that causes the learning or the ICT that causes the learning. Prensky (2004) argues that strategies of ‘engagement’ through the deployment of powerful tools that enrich the learning experience are the required tools of the contemporary teacher.
Others believe it is ‘the art and science of teaching’ or the ‘pedagogy’ that supports these ICT tools which is the most important factor\textsuperscript{215}.

A problem that Learning Managers have in the modern world is managing to stay abreast with change and to keep their skills current with new technologies. They have identified many limiting factors to the uptake of ICT\textsuperscript{216}. Major themes outlined in these reports emphasize: the importance of professional development for teachers; a need for practical ICT skills; teachers need to develop a better understanding of what ICT tools can do; and that teachers need support in engaging ICT through skill development in the application of appropriate pedagogies.

As technology races ahead and education tries to keep up with what is happening, there is a tendency to think that it is critical to have the most cutting edge equipment and technology to use in the education. However, Stephenson proposes that we need to focus on what the technology is doing and centre on why we would use it for learning, rather than race ahead with the technology. He states that:

Rather than look for something new, it is argued, we should first concentrate on using the right methodology for the educational purposes we have in mind, and then look at ways in which online learning can be structured to ensure effective learning takes place\textsuperscript{217}.

Gibson observes that the majority of teachers using ICT tend to prefer to use a variation of the ‘teacher-centred’ model\textsuperscript{218}. Gibson argues that a different model is required that reflects a more student-centred approach to learning using ICT where the focus is on the ability to access information, create solutions, analyse information and apply knowledge. This means that for these teachers to make full use of ICT in their work it is necessary for them to make radical changes to the way they teach\textsuperscript{219}.

CONCLUSION

In summary, we would like to emphasise a few of the key points:

- E-learning and resulting new technologies are an extension of our existing communication mechanisms. It is an evolutionary development of drawing, writing, speaking, reading and listening supported by technologies that can combine all of these areas.
- E-learning marks a shift from broadcast media to interactive media.
- E-learning utilises the communication tools of the time. The internet, mobile technology, digital resources and micro-processors all provide new possibilities.
- School children today can be highly motivated and engaged by computer aided tools and games.
- The e-learning \textit{does} incorporate ‘learning’ and that the manager of learning needs to understand what role the ICT tool plays in the learning. The understanding and application of a design framework such as Dimensions of Learning\textsuperscript{220} is important in this context.

E-learning opportunities abound in education and by engaging with teachers who integrate ICT and in many cases make the ICT integral to the learning, there are many rich stories of opportunities that could never occur in an unconnected classroom. For all the effort and planning to make ICT opportunities work, it is important for the Learning Manager to ask significant questions of themselves in planning these events.

- Is ICT the best way of delivering a concept?
- Is there an easier way to get the same result?
- Am I doing this just to use ICT or is there a real learning opportunity here?
- What role does the ICT tool play in the learning design?

To make ICT integral to classroom learning, there needs to be a critical purpose to the ICT tool being there\textsuperscript{221}, so much so that if the ICT tool was removed, the ‘learning’ could not happen.
Glossary of ICT terms

Web Logs (blogs): A blog is an online notice board style of log that provides a central place for remote users to connect and communicate around a particular theme that the blog author develops. Blogs can be used to record and share travel logs and journals, or to create an online space to share ideas, co-develop thoughts or plans, or discuss or debate pertinent topics.

Book Raps: An online event using forums or blogs over a brief period where groups connect to discuss a book. Focus questions or Rap questions are distributed each week for the duration and the classes in different locations engage in discussions about the questions. The forum or blog is used to post each group’s responses to the questions. Further discussion may take place around individual group responses to each question. After a short period of interaction (usually 3–4 weeks) the facilitator sums up the discussion about the book and the Bookrap is finished.

Movie Raps: These are a similar concept to Bookraps using movies as the discussion topic. Often held over a shorter period or can be done where the movie is broken up in to sections and each group watches the movie in stages and discusses rap questions at each stage posting to the forum.

Virtual Field trips: A chance to experience a field trip online. These virtual trips are usually ready made, however they can be the product of research by the group. Using a web based format, students can visit a location and experience it through images, text, sound files and movie clips. A virtual field trip often includes questions that seek exploration and further research into the location. A virtual field trip can also be created as a method of showcasing a school or area to other schools and developed by a class and shared with the World Wide Web.

Global Youth Forums: An online event using forums or blogs where groups of youths connect to discuss issues and or topics that are pertinent to their school work, subjects specific research or personal development. Facilitated by youths for youth groups, these forums provide opportunity to form online communities that discuss relevant topical issues.

Travel Buddies: These involve two dimensional and three dimensional activities chronicling the journey of a soft toy to a guided destination and the recording and sharing of this data between online groups via some web based communication platform. The Learning Place uses Collaborative Online Projects to support travel buddies, however other formats would work. The travel buddy soft toy becomes the investigator in finding out new information about a destination. One group facilitates the guidance of the journey and another group receives and carries out the journey, documenting and uploading the history in text and images to the collaborative site. This is an online community building exercise that provides opportunities for field experience of distant locations.

Learning Objects: Discrete multimedia based devices that are used to explain a small chunk of knowledge. They usually interactive and require input and responses from students to assist them in navigating through the device. They can be simulations, narrated stories, experiments, or game like interactive multimedia devices.
Additional resources

Further reading is accessible at the following:


George Siemens: *Author of connectivism: A learning theory for a digital age* [http://www.elearnspace.org/Articles/connectivism.htm](http://www.elearnspace.org/Articles/connectivism.htm).

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192 Salmon (2004)
194 Knight, Knight and Teghe (2006)
195 Salmon (2004)
197 Jukes and Dosaj (2004)
198 Prensky (2004)
199 Salmon (2004)
206 Robyler (2004)
207 Siemens (2004)
208 Carr (2006)
209 Siemens (2004)
210 Carr (2006)
211 Carr (2006)
212 Candy (2004)
217 Stephenson (2001) page 219
218 Gibson (2001)
219 Spender and Stewart (2002)
220 Marzano (1998)
221 Robyler (2004)
CHAPTER 7

Transdisciplinary Knowledge Production and Learning Management

Clive Graham and Richard Smith

Learning outcomes
By completing this chapter you, as a developing Learning Manager, will be able to:

5. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   • Examine and generate scenarios for the future of education
   • Examine and locate socio-political impacts on education
   • Identify and utilise innovative solutions that inform the practice of Learning Manager

6. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager:
   • Use Trans-disciplinary concepts

The historical changes alluded to in Chapter 1 suggest that the realities of living in societies like those in Australia are shaped by a huge number of social, political, economic, cultural and knowledge-based trends and pressure. While it is extraordinarily difficult to summarise these, the following characteristics provide the vignettes of what is meant by ‘social change’.

The first characteristic is that much contemporary knowledge is generated in the context of application. Let us illustrate the point with examples.

In 1993, the Vatican acknowledged that Galileo Galilei had been wrongly branded a heretic in 1633 for proclaiming that the earth moved around the sun. A Papal Committee of the Pontifical Academy of Sciences, convened in 1979, deliberated for more than thirteen years to reach this decision, officially describing the study as scholarly, founded on objective evidence. The relevance of the Galileo inquiry was effectively nil to the outside world considering the absence of Galileo and the irrefutability of the scientific laws involved but this did not dissuade the Papal Committee from the merits of the procedure.

In 2005, Motorola unveiled the first working nano-emissive display (NED) prototype television receiver: a twelve-centimetre screen prototype designed to attract licensees. Motorola anticipates that before the end of the decade, the NED screen will be the same wide screen as the LCD and plasma models but retailing for $800 compared with $4,000 for the average plasma screen. Further, whereas the LCD screen uses five thousand volts of electricity, the NED uses just ten volts and there is no limit to size as with LCD screens. The NED screen has the capacity to replace billboards and stadium screens as well as make one-hundred-and-fifty centimetre home movie screens commonplace.

These two case studies succinctly demonstrate the difference between what is termed Mode-1 and Mode-2 knowledge production. In the Galileo study, the Pontifical Academy of Sciences operated a Mode-1 system of knowledge production with the problem set and solved in a context governed by the academic community (in this case a Papal Committee), knowledge derived from a disciplinary base (Church law), a high degree of homogeneity of the knowledge producers (religieuse), and quality control by peer review that is rigorous and anonymous — the unnamed Committee members took thirteen years studying the problem.

In contrast, the Motorola NED screen case study represents Mode-2 knowledge production involving knowledge produced in the context of application (the television market), by way of a
transdisciplinary process (drawing on science, telecommunications, social values, economics, marketing and other disciplines to produce a unique outcome), involving locale and participant heterogeneity (the prototype evolving at a number of sites with multiple different actors) and social accountability (actually seeking licensees before going into production), and with a quality control involving diverse intellectual, social, economic and political influences that constitute the consumer market. It can be seen that in the Motorola example, knowledge is generated in the context of an environment in which theoretical/experimental and practical problems are identified, innovative methodologies are developed, aimed at uses, and the process of invention and application is concluded in a relatively short time.

Another characteristic is that knowledge is produced and disseminated from many places in 2000s, rather than being the sole preserve of universities. We are all familiar with the term ‘think-tank’ or groups of ‘experts’ who provide advice to the public and private sectors as well as a range of community groups. Many such groups have members who hold PhDs and similar qualifications, as well as those who have industry and professional experience as the basis for expertise. Industries maintain laboratories and the consultant profession is mainstream. In addition, the distribution of knowledge is aided by communications technology such that ideas can be exchange, refined and disseminated very rapidly and independently of more traditional publication sources.

A third characteristic of society today is that multiple perspectives are associated with social and cultural diversity. It is difficult indeed to sustain the argument that one position on social or cultural issues is ‘the’ position and to which everyone must conform. The debate around ‘Australian values’ is a prime example. From the point of view of knowledge production, the idea of the ‘objective’ or ‘disinterested’ investigation that is associated with much university-based ‘research’ is difficult to maintain, despite the need to propagate scientific excellence. Research always has to account for the fact that the researched have their own opinions and perspectives on the ‘what’, ‘why’ and the ‘how’ of investigations and what ultimately is reported as ‘knowledge’. In universities, there has been a distinct shift for researchers to a ‘culture of accountability’ rather than the expectation that they can operate independently and autonomously.

The fourth characteristic is that professional work is no longer the preserve of the ‘professionals’ when it comes to judging what is of worth. Indeed, in professions such as teaching, there are not only more players as private providers join the ‘education industry’, but there is a growing population of people who comment on, consult with, advise, disseminate, oppose, compete with and otherwise intervene in the professional life of educators. Consequently, there are multiple definitions of what counts as for example ‘good’ teaching’ or a ‘good school’. The public sector especially, because it has large and diverse constituencies, has greater difficulties determining what its core priorities need to be. In this context, education professionals are routinely called on to participate in ad hoc working groups and to use a range of theoretical perspectives and practical methodologies to solve pressing curriculum, teaching, assessment and community problems. Professional input and expertise is often more associated with participation in such activities than it is with traditional academic research.

The fifth characteristic of the times in which we live is captured by the term ‘transdisciplinarity’. By transdisciplinarity we mean several things. First, there is a realisation that in a complex world, attempts to find single, integrated solutions to problems are likely to be unsuccessful. This is because significant problems are bound to be multidimensional and unstructured, with many possible cause and effect chains. Think of current issues such as ‘sustainability’, the ‘water’ shortage or ‘poverty’. Problems like these, while highly significant, brook not quick fixes. Second, almost everyone has a view on how complex problems are posed, approached and solved. The diversity of opinion pays scant attention to claims for the assumed greater knowledge of ‘experts’ (including teachers and academics of course) over lay analyses of problems. Think of ‘talk-back radio’ and ‘letter-to-the-editor’ for example. Third, such problems are infused with social values so that it is near impossible to sort out what is ‘scientific’ from the normative positions people and groups adopt around such problems. There can be dysfunctional outcomes from these circumstances but they can also generate and sustain partnerships between society and academia as joint efforts are made to deal with complexity. The ‘transdisciplinarity’ idea is fundamental for the transformation of education more generally. It is also important for learning to be a teacher in the immediate future.
The Rise of the Learning Manager

TRANS-DISCIPLINARITY: WHAT IT IS

The first significant attribute of transdisciplinary knowledge production, then, is that it integrates what we presently know as single disciplines. Integration has the effect of combining concepts and methodological approaches so that the separate components are fused into a new whole. The knowledge generated by the new whole is both greater than the derivative disciplinary parts. Moreover, McMichael contends that when transdisciplinarity is employed, “the whole is not just greater than its derivative disciplinary parts, but it has qualitatively different properties”228. In other words, the cake once baked is different from the raw ingredients that comprise it. A transformation has taken place and the whole has become something more than its component parts.

Transdisciplinarity was originally conceived by the 1970 OECD Interdisciplinarity International Conference as an overarching, universal theory of knowledge229. However, the premise of ‘universal’ knowledge is now widely disputed and transdisciplinarity has shifted emphasis from a single unitary vision of knowledge to an integrative one. Joseph Kockelmanns defines transdisciplinarity as an all-encompassing framework that addresses the problem of integration and need for a common conception of the world230. Raymond Miller perceives transdisciplinarity as an overarching framework that transcends the narrow scope of a disciplinary worldview231. Transdisciplinarity, then, is something more than disciplinarity, or indeed, multi-disciplinarity or inter-disciplinarity.

In 1987, there were 8,530 definable knowledge fields or disciplines232 and that number has grown considerably since. Basarab Nicolescu refers to this as the ‘babelisation of knowledge’ in which the single decision maker remains devoid of sufficient knowledge to make an appropriate decision233. In fact, there are very few real-world problems that can be solved by a single discipline. Mode-1 knowledge producers argue that their employment of multi-disciplinarity and inter-disciplinarity as ‘touching points’ between disciplines overcome such objections234 but Mode-2 knowledge producers assert that these fail to generate unified outlooks because they rely on the simple juxtaposition of monodisciplinary approaches235. Burnett states:

I recently attended a conference in Los Angeles on instructional design. What astonished me about the meeting was the degree of specialization of the various sub-disciplines of education. Each has its own discourse and orientation. Each had its own journal and culture236.

Of course, most of the formal school education curriculum frameworks and teacher education programs are discipline-based. Teacher educators and teachers are, following the framework of transdisciplinarity, excluded from important tools for making sense of the whole. Individual lecturers and teachers possess specialisations but rarely are they able to bring individual disciplines together effectively so that students grasp the ways in which knowledge has purchase on the world beyond the school. In the main, lecturers and teachers leave it to students to put the pieces together. Consequently, many students graduate without the capability of integrating knowledge and applying it to the real-world context. The Learning Management concept with its related portal tasks is the transdisciplinary base that integrates the components of Learning Management in contextualised exercises such that students have the potential to understand and know both disciplinary specialisation and the transdisciplinary ability to make sense of knowledge in application.

Unpredictability

The second significant attribute of transdisciplinary knowledge production is its unpredictability. The integration of the multiple agendas of individual disciplines leads in unknown directions. Transdisciplinary knowledge producers look for connections between, across and beyond the disciplines237 that might otherwise be overlooked. Hence, transdisciplinarity operates with, and celebrates, unpredictability. In this sense, transdisciplinary research projects are generators of the future in that they acquire their meaning only from what they will have been238. All transdisciplinary knowledge production incorporates a futures perspective.
Subjectivity

The third significant attribute of transdisciplinary knowledge production is that it combines subjective intuition and objective research such that individuals are able to articulate their role in solving the problems of a complex society. The Charter of Transdisciplinarity adopted at the 1994 First World Congress of Transdisciplinarity held in Portugal states that transdisciplinarity “presupposes an open-minded rationality by re-examining the concepts of ‘definition’ and ‘objectivity’”\(^{239}\). This is important because transdisciplinary knowledge production, besides integrating various disciplines, also integrates objectivity with the subjectivity we employ to interpret and use knowledge. It will be recalled that a distinguishing feature of academic disciplinary research is the assumption that the researcher is aloof from the researched: that the research process is untainted by subjective factors. The recognition that subjectivity has effects on ‘objective’ research and that the two are often inseparable is something that academic science has eschewed.

The importance of this can be illustrated with reference to a famous disciplinary piece of research. In a 1974 economic study of slavery in America, Fogel and Engerman were able to conclude that slavery was profitable and therefore good for the southern states. Fogel and Engerman were able to arrive at this conclusion by discarding the subjective and ethical dimensions of humanity and evaluating slavery solely in objective, economic terms\(^{240}\). However, whether one can ever separate the subjective experiences of the slaves themselves from the economic scenario raises the question of whether disciplinarity provides little or no program for how to live in or with social complexity\(^{241}\). In contrast, transdisciplinarity argues that it is impossible to divide knowledge into objective disciplines that ignore the subjective reality.

Transdisciplinarity, then, rejects the grand-narrative, one-correct-way of doing things in favour of the subjective local. For example, one cannot solve pollution in the Murray River, Australia, with the same disciplinary mix as, say, solving pollution in the Hudson River, New York. The salinity of the Australian terrain, tidal issues, and settlement along the foreshores, flora, fauna and human waste suggest a different mix of disciplines and transdisciplinary outcomes according to the context. Thus, when we integrate the multiple agendas of individual disciplines, we mix empirical with non-empirical research, quantitative with qualitative inquiry and objective with subjective analysis. Not only does this promote a comprehensive approach to problem resolution but challenges the role of the observer that defines disciplinarity.

The importance of this cannot be overestimated for, as Morin asserts, it is insufficient to value the links between experiences, disciplines, creativity and ideas without the practices that transform the links into connections.\(^{342}\) In other words, disciplinary academic who advocate a better society need to find an integrated method to bring one about. Hence, Morin conceives interdependence between subjective intuition and objective research to form an integrated understanding of what we call ‘reality’. Transdisciplinarity has the potential by way of reflexivity (thinking back on what has been learned) to integrate the individual into the research process and thereby create a better society. By accounting for the subject as well as the object, for example, we might speak with less assurance about the buoyancy of our economy should we find an increasing level of depression among its citizens.

**APPROACHES TO TRANSDISCIPLINARITY**

While there is general consensus concerning the transdisciplinary mindset, there are, nonetheless, four discrete emphases which explain the term most thoroughly. The first two, contextualised and transgressive transdisciplinarity are rooted in practice (phenomenological transdisciplinarity). The third and fourth, comprehensive and hyperreality transdisciplinarity, are theoretical.
Phenomenological transdisciplinarity

Contextualised transdisciplinarity

Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow in the 1994 book *The new production of knowledge*, describe transdisciplinarity as transcending the disciplines that contribute to it to form a new theory or model pool\(^\text{241 244}\). They aligned transdisciplinarity with Mode-2 knowledge production and define four attributes that form the foundation for academic discourse on transdisciplinarity.

First, it develops a distinct but evolving framework to guide problem solving efforts generated and sustained in the context of application in which the solution does not arise solely or mainly from the application of knowledge that already exists, such that the knowledge produced cannot easily be reduced to disciplinary parts. Second, it develops its own distinct theoretical structures, research methods, and modes of practice that are not necessarily located on the prevalent disciplinary map. Third, it communicates results to participants as they participate ensuring that the diffusion of the results is accomplished in the process of their production. Fourth, it is dynamic\(^\text{245}\). Gibbons, Limoges, Nowotny et al. base these attributes on empirical evidence demonstrating that five percent of the population of practicing academic knowledge producers circa 1994 were making the majority of scientific advances\(^\text{246}\). These advances involved cooperative ventures between university, government and industry which Gibbons, Limoges, Nowotny et al termed Mode-2 knowledge production\(^\text{247}\).

For Gibbons, Limoges, Nowotny et al., the context of application determines the nature of the transdisciplinary process. Thus, transdisciplinary knowledge pertains specifically to the context in which it is derived and is not necessarily transferable to other contexts. The fourth significant attribute of transdisciplinary knowledge production, then, is that it contextualises knowledge to an application. In this way, Learning Management not only evaluates knowledge learned but applies the worthiness of that knowledge to solve real-world problems.

Transgressive transdisciplinarity

In 2001, three of the authors of *The new production of knowledge*, Helga Nowotny, Peter Scott and Michael Gibbons observed that transdisciplinarity is constrained by neither disciplinary nor institutional boundaries\(^\text{248}\). In contemporary society, the disciplinary model of scientific knowledge production is challenged by the ‘transgressive’ images promoted by the media, the users and the critics of the knowledge produced\(^\text{249}\). They argue that transdisciplinarity affects the way society constructs and accepts new knowledge\(^\text{250}\). It does this by breaking down the barriers between social, market, cultural and scientific domains. In this way, the concept of transdisciplinary knowledge production is a driver of social change. There are several ways that it does this. Let us consider an example.

In 1989 Hollywood actress Merryl Streep led a widely publicized campaign involving *60 minutes* to demand that the chemical Alar (a wax sprayed on fruit to ripen it evenly) be withdrawn from use on apples. Although Streep had minimal scientific expertise on the issue, she testified as an expert on Alar before a Congressional hearing. In the wake of this campaign “millions of alarmed parents panicked and dumped untold gallons of apple juice and bushels of apples [and] the apple industry lost about $375 million”\(^\text{251}\). Streep later learned that that the science behind the anti-Alar scare was unsubstantiated with authoritative scientific studies concluding Alar to be harmless at the levels used.

Thus, in contemporary society, reliable, scientifically based knowledge no longer has to be ‘socially robust’ in order to withstand challenges by multiple interest groups in a socially diverse society. Nowotny refers to this as “people have been allowed a place in our knowledge” and thus “the context can (and does) speak back”\(^\text{252}\). The context is what Nowotny et al call the ‘agora’, a term derived from the Ancient Greek concept of market-place in which democracy was enacted. In contemporary society, social networks mediate new knowledge in the plural, democratic agora which Nowotny et al contend has arisen because science and society are mutually invasive and invaded\(^\text{253}\); that is,
Transdisciplinary Knowledge Production and Learning Management

Transdisciplinary knowledge production is transgressive in a Mode-2 society. Education is a key arena in which the core ideas and practices are constantly contested from ideological standpoints. Partly, this is because it is also one of the major transmitters of knowledge and values from the past, a conserver of more conservative mores.

With universities producing more doctoral graduates than can be employed as academics, it is inevitable that doctoral graduates employed in industry will challenge the dominance of disciplinary knowledge produced by academia and the school system. In industry, problems are not confined to the disciplines of academic pursuit but transgress these. With the rise of free-market capitalism in the last quarter of the 20th century, industry evolved new technologies, energy sources and methods of production to embed knowledge production in the economic milieu devoid of rigid disciplinarity. Doctoral graduates are attracted by better pay and conditions than universities can award and this has transformed the Western economy into a “new economic game with new rules requiring new strategies to win”.

Transdisciplinary knowledge production, then, is the knowledge economy strategy for delivering unbounded creativity that transgresses the disciplines of academic (and school) pursuits to deliver innovative, commercially valuable outcomes. Compare your mobile phone with one ten years old and you will comprehend the economic value of transgressive transdisciplinarity by way of the integration of text, camera, games, internet and MP3 with telephonics.

Theoretical transdisciplinarity

Comprehensive transdisciplinarity

Dr Hideaki Koizumi, a world leader in mind-brain science, observes that throughout history, knowledge breakthroughs have been accomplished by bridging the gap between completely different disciplines. For example, he observes that Newton’s system of classic dynamics was created by combining the concept for explaining the motion of astronomical objects with the concept for explaining why objects fall, and Darwin’s theory of natural selection combined biology with Adam Smith’s free-market competition. Koizumi suggests that the compartmentalisation of the disciplines that originally served to order knowledge may have become too rigid to enable knowledge breakthroughs. Thus, he contends that transdisciplinarity is needed to overcome this rigidity and so bridge and fuse disciplines to enable the evolution of new comprehensive fields.

Koizumi conceives that new fields of knowledge will be more complex than the disciplines that contribute to them. Fields such as mind-brain science, environmental science and educational science, for example, will necessarily require the integration of the knowledge and philosophy taken from many related disciplines. He perceives that the comprehensive mix of these will form new conceptual structures that will transcend the borders of the contributing disciplines to form their own conceptual structure. This conceptual structure will be at once both a complex mix of the contributory disciplines and a new knowledge field in its own right.

Koizumi’s comprehensive transdisciplinarity involves teams of disciplinary specialists working together rather than the single knowledge generator that Newton and Darwin exemplify. The process communicates results to the transdisciplinary team as they participate and so team members come to understand the transdisciplinary whole rather than simply their disciplinary contribution as they co-create the new comprehensive field. This is precisely the goal for the Learning Management concept: it is not merely another way of referring to ‘teaching’ but an entirely new concept that has evolved from transdisciplinary considerations.

Hyperreality transdisciplinarity

Quantum physicist, Basarab Nicolescu defines transdisciplinarity in a hyperreality that is “at once between the disciplines, across the different disciplines, and beyond all discipline. Its goal is the understanding of the present
The Rise of the Learning Manager

world256. At the core of this idea is the notion that normally, something cannot be itself and not itself at the same time. So a lump of wood is always a solid and not sometimes liquid.

However, there are problems that cannot be solved by any set of rules or procedures and that for such problems a set of axioms must apply257. Stevenson refers to such a situation. Imagine a teacher with 20 years experience in teaching who is increasingly faced by the problems of a diverse student population258. Normally the teacher can use tried solutions to known problems that students bring to the classroom. This is what is generally known as “experience”. However, as the pace of change increases, the experienced teacher who over-relies on accumulated experience, has to face new problems more often but tried and tested solutions no longer work successfully. The teacher is confronted with a reality that ‘the classroom’ and all that implies is simultaneously no longer ‘a classroom’ in the experience-based model and the needed answers to new problems are not readily apparent. Placed in this situation, the teacher must move his or her thinking and practice to another level of reality. More generally, we can imagine how this example might be analogous for a whole system. Thus,

The recognition of the existence of different levels of reality governed by different types of logic is inherent in the transdisciplinary attitude. Any attempt to reduce reality to a single level governed by a single form of logic does not lie within the scope of transdisciplinarity259.

In simple terms, to solve hard problems efficiently, it is often necessary to adopt an understanding of complexity260. If we take the teacher’s (system’s) taken for granted ways of solving classroom problems and his increasing range of unfamiliar problems, we can imagine that the solution to his (the system’s) dilemmas lie in another set of solutions and practices, or indeed, in another way of thinking about the issues altogether. The solutions then lie in a transdisciplinary place, a different reality. Hence, transdisciplinarity involves action at several levels of reality at once261. Thinking creatively in hyperreality represents is a significant attribute of transdisciplinary knowledge production. Hyperreality transdisciplinarity has the potential to create futures that are distinct from, but complementary to, disciplinary research which is rooted at the single level of reality that defines it.

TRANSDISCIPLINARITY AND LEARNING MANAGEMENT

The Zurich Transdisciplinary Conference held in 2000 noted that transdisciplinarity has already proven effective in field such as ageing, banking, education, energy, health care, migration, nutrition, pollution, sustainable development, urban and landscape development and waste management262. Professor Atilas Ertas proposed that transdisciplinarity should underpin contemporary education systems in order to transcend “the artificial boundaries imposed by traditional academic organizational structures” and to address the “solution of large and complex problems by teams consisting of many people from diverse backgrounds”263. One might add the importance of ensuring that educational services are sufficiently effective to ensure that success rates are optimized in all sectors of the education system for both individual advantage and social well-being.

Ertas provided the raison d’etre for transdisciplinary Learning Management:

The most important aspect of education is not the imparting of specific technical knowledge, but rather the learning of how to find knowledge when it is needed, how to assimilate that knowledge, how to integrate that knowledge, and how to synthesize new ideas and solve problems264.

Ertas implies that the complexity of the twenty-first century requires us to re-orient education from the disciplinary pedagogy designed for the routine of the manufacturing economy to transdisciplinary pedagogy that necessitates us managing our learning in order to synthesize new ideas and solve problems. The Western world has moved beyond the simplex to the complex. In fact, technological innovation combined with a massive change in communications and distribution systems has altered what we mean by information and also how our (Western) cultures view knowledge.
Ron Burnett contends that these have redefined our notions of time and space and the way we map and develop explanatory models for what is happening around us. He proposes that transdisciplinarity may provide us with the most useful strategy for understanding the intersection of these phenomena and to connect seemingly disparate activities. The transdisciplinary process, then, has the potential to transform Western society. A most significant feature of transdisciplinary knowledge production then is that it enables the management of the complex knowledge base on which the knowledge economy is built in order that individuals can synthesize new ideas and solve problems in accordance with their individual abilities and society’s needs and thereby progress the knowledge base of Western civilization. In this sense, transdisciplinarity is viewed as the creative dynamic of new knowledge production.

CONCLUSION

Knowledge in Western society has become democratized. The populace now questions knowledge outcomes such as DOW Chemical breast implants, thalidomide, asbestos, super-phosphates and a host of other harmful products objectively produced by science. The transdisciplinary incorporation of the subjective into the production and acceptance of knowledge coupled with the creativity of new space that transdisciplinary mixes can engender has the capacity to deliver more complex but meaningful applications of knowledge. This does not reduce the reliability of knowledge but expands it. Transdisciplinarity applied to Learning Management suggests the need to involve four new dimensions to education: a different mindset about disciplines; different systems and compartments to allow an encompassing, integrated consideration of knowledge; the incorporation of different qualities of thought such as intuition and hyperreality; and the different interests of stakeholders. Learning Management has the potential to develop students with the confidence to manage their own learning by way of synthesizing new ideas and solving problems in unfamiliar contexts. The goal of transdisciplinary Learning Management is not to repeat the past but to create a meaningful future.

1. How might transdisciplinary Learning Management that integrates the contributory disciplines such the resultant knowledge has qualitatively different properties be practically demonstrated to either primary or secondary school students?

2. What is meant by Basarab Nicolescu’s statement that transdisciplinarity is “at once between the disciplines, across the different disciplines, and beyond all discipline: its goal is the understanding of the present world”?

3. In what ways can knowledge be described as transgressive in the knowledge society? Provide some contemporary examples of transgressive transdisciplinary outcomes.

4. What might you do to implement transdisciplinarity in the contemporary education system? Provide some practical examples.

5. Ron Burnett contends that we have redefined our notions of time and space and the way we map and develop explanatory models for what is happening around us. Why is transdisciplinary Learning Management an effective strategy to account for these changes?
1. Using the web, explore the applications of transdisciplinary thinking to either a health or an environmental issue. Note the types of disciplinary inputs involved.

2. Using the web, explore the quantum wave-particle duality. How does hyperreality transdisciplinarity add to your understanding of this conundrum?

3. Using the web, discover five ways in which the knowledge society differs from the manufacturing society of the second half of the 20th century. Discuss ways in which these differences affect your daily life.

4. What is meant by complexity? Use the web to discover multiple contexts for this concept.

5. Explore the web to find transdisciplinary applications to education. Consider whether these applications contribute to an understanding of Learning Management.

Further reading


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222 Nowotny, Scott and Gibbons (2003)
223 Fantoli (2003)
224 Brandon (2005)
226 Jacob (2000) page 15
227 Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) pages 3-8
228 McMichael (1998)
229 Klein and Doty (1994)
230 Kockelmans (1979)
231 Miller (1982)
232 Crane and Small (1992)
233 Nicolescu (1999)
236 Burnett (2000)
237 Nicolescu (2002) page 44
Transdisciplinary Knowledge Production and Learning Management

238 Rheinberger in Nowotny (1994)
239 International Center for Transdisciplinary Research (1994)
240 Fogel & Engerman (1974)
242 Morin (1997)
243 Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) page 29
245 Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) page 5
246 Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) page 1
247 Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994) page 17
248 Nowotny, Scott and Gibbons (2001) page 70
249 Nowotny, Scott and Gibbons (2001) page 26
250 Nowotny (2003)
251 Environmental Working Group (1998)
252 Nowotny (1999) page 253
253 Nowotny, Scott and Gibbons (2001) pages 54-55
254 Thurow (1996) page 3
255 Koizumi (2000)
256 Nicolescu (2002) page 44
257 Nagel and Newman (1958)
258 Stevenson (1999)
259 First World Congress of Transdisciplinarity (1994)
260 Nicolescu (2002) page 49
261 Nicolescu (1998)
262 Häberli, Grossenbacher-Mansuy and Klein (2001) page 11
263 Ertas (2000) page 15
264 Ertas (2000) page 14
265 Burnett (2000)
266 Scholz (2001)
Building Resilience in Learning Managers

Cecily Knight

Learning outcomes

By completing this chapter you, as a developing Learning Manager, will be able to:

1. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   - Examine and locate socio-political impacts on education
   - Identify and utilise innovative solutions that inform the practice of Learning Manager
2. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager:
   - Learning Manager Resilience

Learning Management transforms some fundamental aspects of the role of the teacher. It considers the implications of social, economic and cultural change for schools and their capacity to operate in a globalising world. Smith and Lynch argue that the term ‘Learning Manager’ is not simply another word for ‘teacher’ but rather that Learning Managers transcend the knowledge and skills set of teachers. Smith and Lynch cite Edgar’s view that Learning Managers today provide knowledge for young people that was traditionally provided by their parents or other social groups. Learning Managers require skills that will enhance their own resilience as well as prepare them to enhance the resilience of the young people they work with.

Resilience is important because it explores ways to develop personal and interpersonal resources. Personal coping skills in coping with change are considered one of the crucial skills for current generations as they engage with the vast range of opportunities available in a globally focussed world. Drucker suggests that

In a few hundred years, when the history of our time is written from a long-term perspective, it is likely that the most important event that those historians will see is not technology, not the Internet, not e-commerce. It is an unprecedented change in the human condition. For the first time — literally— substantial and rapidly growing numbers of people have choices. For the first time, they will have to manage themselves. And society is totally unprepared for it.

Learning Management focuses on the development of skills that enable adults and young people to ‘manage themselves’. Research shows that people who are resilient, that is, demonstrate social and emotional competence and a futures perspectives, have personal coping skills which empower them to manage life successfully. These coping skills
become protective resources in young people in dealing with contemporary issues such as bullying, change, loss and grief, family and domestic violence and substance abuse. The coping skills become protective resources for Learning Managers as they meet the current and future demands of their professional roles.

Resilience is significant for current and future generations in the pursuit of life happiness and management. Generation Y are seeking a more holistic life and have a different view of success to the baby boomer generation. Generation Y question the routine and long hours of work of their parents’ generation, so require particular skills and attitudes to deal with continuous change. ‘Wellness’ and ‘life-balancing’ industries are already increasing and it is predicted there will be a need for even more support for future generations as they opt out of traditional jobs and become more entrepreneurial in their approach to life.273

Learning Managers need to develop their own resilience. Darling-Hammond notes that in America 30% of new teachers leave the profession in the first five years.274 This concerning trend is repeated in Australia.275 Resilient Learning Managers are likely to be more prepared to cope with the issues that threaten teacher attrition by being more aware of the issues that face young people and families in today’s world.

WHAT IS RESILIENCE?

After reviewing definitions in the literature, resilience is seen as an important life-skill that enhances emotional and social wellbeing and enables people to cope with life. It involves the ability to be flexible and adaptive in response to a problem, the ability to ‘bounce back’ after a negative experience and the ability to empathize with how others feel. It recognises that relationship skills are as important as self-awareness skills. It involves a mindset that sees ‘problems’ as ‘challenges’ and a belief in the value of prevention and proactive approaches. Resilience is not a static quality and a young person or Learning Manager may be more or less resilient at different times in their lives. I consider resilience a key feature of an effective learner and as such, it has particular relevance to Learning Managers.

Changing circumstances impacting on the work of educators

I argue that shifts in life experiences today as a result of many interconnected changes at a societal and family level, have the potential to generate negative outcomes for some young people. I suggest resilience skills empower these young people to cope with the complexities of life in the 21st century. A knowledge society presents new challenges for schools as they try to provide students with different types of knowledge and skills. The content becomes less important than the capacity to engage with future learning tasks, while at school and beyond. Collective intelligence is as highly valued as individual intelligence. Technology plays a central role in reshaping employment practices and social patterns where knowledge is considered the key resource in determining success in global markets. The influence of globalisation and technological innovation will continue so education systems are consequently forced to think about different structures and knowledge bases to those that were relevant for societies of the past.

There is a plethora of research that reports that the quality of what teachers know and can do has the greatest impact on student learning.277 Teacher quality outweighs student background factors in explaining variation on student achievement.278 Woolfolk reports that better student performance correlates with teachers’ optimism about their ability to make a difference.279 Resilient Learning Managers possess a sense of optimism along with the skills and strategies to support young people in the classroom.

Discuss your understanding of the changing circumstances that are impacting on the work of educators today. In what ways are the life experiences of young people today different to when you were at school?
WHAT ARE THE SOCIO-POLITICAL IMPACTS ON EDUCATION?

The knowledge society is a response to the global knowledge economy that is impacting on societies throughout the world\(^{280}\). In the transition from an industry-based to a knowledge-based economy, these social commentators outline a confluence of currents for change. It is argued that there is increased competition and demand for innovative skills and knowledge in the labour market. There is a declining role for physical labour. Change is rapid and people are constantly required to use creative energy and acquire new skills. These skills include the ability to risk-take, problem solve and work collaboratively to maximise the competitive advantage; and a growing focus on the concept of competence. Competence is understood in terms of the capacity to apply knowledge in different contexts.

Bentley\(^{281}\) suggests that if education has as its general aim “to equip its pupils with the tools and capacities to succeed in life”, then it is necessary to think about the challenges that young people will face. He sees the challenges in four areas: global, societal, localised and personal. Global challenges, according to Bentley\(^{282}\), “sometimes seem to defy any possibility of solution…They range from preserving the planet as an environment in which humans can survive to preventing the ravages of war, poverty and disease across the worlds”. Societal challenges include political and economic systems that meet the needs of diverse groups of people. Localised challenges at the next level involve running effective and inclusive organizations and families while personal challenges include making successful life-choices and possessing coping strategies for modern life\(^{283}\). Each of these challenges in some way affects Learning Managers and young people. As society changes there is a need for education to change with it.

According to Hargreaves\(^{284}\), this challenge presents educators with two missions for teaching — how to teach for and beyond the knowledge society — educating students who can contribute to the knowledge society with relevant knowledge and skills and who can also have a strong sense of social justice. Investment is needed in intellectual capital and social capital. Hargreaves suggests, “Teachers and schools who should be the catalysts of change in the knowledge society, are too often its casualties”\(^{285}\).

For teachers to become ‘catalysts of change’ they need a new kind of professionalism which includes learning to teach in ways they were not taught and building their capacity for change and risk\(^{286}\). The knowledge society requires teachers to engage in shared professional learning and teamwork. For this to be effective, Hargreaves and Fullan suggest teachers need to foster emotional intelligence — both their own and others\(^{287}\). Goleman suggests that emotional intelligence includes possessing the competencies to manage one’s own emotions, have empathy for others and the social skills to relate well to others.\(^{288}\) I refer to this as resilience and consider it essential criteria for effective Learning Managers. Smith and Moore promote the concept of teaching for and beyond the knowledge society when they say Learning Managers must be ‘workplace ready’ and a ‘futures-oriented’\(^{289}\). Being ‘workplace ready’ implies having “the capacity and capability of producing learning outcomes in the learners under their charge”. Being ‘futures-oriented’ involves having both the mindset and the capabilities as a Learning Manager to be optimistic about one’s ability to impact on the future. Smith and Moore contend, “‘Futures-oriented’ graduates are ambitious, enterprising and anticipate career rewards that outstrip the role of ‘teacher’ because they understand that ‘school teaching’ is but one possibility in the learning industries”\(^{290}\).

POLICIES THAT REFLECT THE NEED FOR RESILIENCE

An agreed national approach to help schools ensure the wellbeing of all Australian students is provided in 2003 The National Safe Schools Framework. This framework was developed by a taskforce established by the Ministerial Council on Education, Employment, Training and Youth Affairs of the Australian government\(^{291}\). In particular, it aims to help schools and their communities address issues of bullying, harassment, violence, and child abuse and neglect. The framework sets out a range of suggested approaches for schools to draw on in establishing a safe and supportive environment. The National Safe Schools Framework is a policy that recognises the need for strategies to support
Building Resilience in Learning Managers

children and young people. It also puts these issues clearly on the curriculum agenda of all Australian schools. The National Safe Schools Framework policy in establishing its context states that it presents a way of achieving a shared vision of physical and emotional safety and wellbeing for all students in Australian schools. The Framework recognises the need for sustained positive approaches that include an appreciation of the ways in which social attitudes and values impact on behaviour of students in our school communities.

The Queensland government’s Smart State initiatives have provided the blueprint for education reform in Queensland. The Queensland State Education – 2010 document and the Education and Training reforms for the future (ETRF) green and white papers are documents that set out Queensland’s response to the demand for education reform in the current context. The ETRF white paper states, “The future of every Queenslander depends on their ability to adapt to these changes…This means they must have strong foundations in skills such as critical thinking, problem solving, collaborative learning, and communication.” These skills are fostered in a Learning Management approach as they are considered manifestations of resilience.

Media influences

Exploring how media influences have impacted on classroom practice provides an example of how changing circumstances in society are impacting on the work of educators. This example also highlights the subsequent need for different knowledge sets required by Learning Managers to manage these changes. Australia has experienced a number of perception-changing events in the last five years. The concept of ‘perception-shaping events’ discussed by Schwartz, refers to the fact that public perceptions “can pivot the direction of history more swiftly and irrevocably than money or military power.” A perception-changing event touches a responsive chord with the public and is evident from the public’s first reactions to the event. September 11, 2001, the 2002 bombing of the Sari nightclub in Bali and the bombing of the Australian embassy in Jakarta in 2004 have been perception-changing events for Australians. Australians’ perceptions of the impact of television-mediated images on children and young people were changed by these events. The events appear to have taken Australians to a new level of consciousness regarding the effects of the media on student wellbeing and the role of education in supporting students in these situations. They were moments of crisis for teachers as they were called upon to implement new pedagogical practices for which they felt ill equipped. It was a powerful message that there was a need for emotional coping strategies for children and young people and for teachers. In the aftermath of these events, not only was there a need for the therapeutic nurturing of children and young people affected by the events, but also the need to rethink what constitutes appropriate knowledge and skills taught in schools.

A study undertaken by Knight following the events of September 11, the attack on the twin towers in New York, tested this hypothesis. The events of September 11 affected many people in Australia, including children and young people. As such, it provided an opportunity for examining how schools dealt with the effects of this type of global trauma and how well prepared teachers in the classroom were for such an occurrence. Such information is valuable in determining if there were aspects that could be handled differently. Schools and Learning Managers are consequently challenged to give priority to the types of knowledge in school curricular that will prepare students to live and work in the knowledge society. There are implications for Learning Managers as they are called on to exercise a wide range of skills in their role that challenges their own resilience.

Read the article “9/11: Getting real in teacher education” by Knights (2002) and comment on how the media impacts on strategies that Learning Managers use in relation to resilience. How should Learning Managers respond?
THE 3-DIMENSIONAL FRAMEWORK FOR RESILIENCE AND DIMENSIONS OF LEARNING

I propose resilience as a 3-dimensional framework: firstly as a state; secondly as a condition and thirdly as a practice. The 3-dimensional framework focuses on the important role of the Learning Manager in promoting resilience for themselves and for young people and contributes an alternative way for teachers to think about and implement resilience enhancing strategies. This framework aligns with the Dimensions of Learning (DoL) model. DoL is a research-based framework that provides practical strategies that enhance quality learning experiences. DoL is valuable as a shared language for Learning Managers as they plan, teach and evaluate learning experiences for young people and in addition, has value as a model for their own professional knowledge and ability to manage their own lives. Though all five dimensions have useful thinking processes, it is Dimension 1: Attitudes and Perceptions and Dimension 5: Habits of Mind that have most relevance to resilience.

Resilience as ‘a state’

Resilience as ‘a state’ indicates a set of personal characteristics associated with healthy development. Fuller describes resilience as the “the happy knack of being able to bungy jump through the pitfalls of life”. Resilience in adults and young people is linked to their emotional well-being. Masten and Coatsworth state that resilience “generally refers to manifested competence in the context of significant challenges to adaptation or development.”

Based on my knowledge of the research I have outlined key concepts that underpin resilience as a state. I propose the following ‘categories of manifestations of resilience’: emotional competence; social competence; and future oriented. In developing the categories of manifestations of resilience, I have drawn on the work of Bernard and Wolin and Wolin. In Table 7.1 below I identify the attributes that encompass each group.

Table 7.1 Resilience as a state

<table>
<thead>
<tr>
<th>Emotional competence</th>
<th>Social competence</th>
<th>Futures oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive self concept</td>
<td>Communication</td>
<td>Optimism</td>
</tr>
<tr>
<td>Internal locus of control</td>
<td>Relationships</td>
<td>Problem solving</td>
</tr>
<tr>
<td>Autonomous</td>
<td>Empathy</td>
<td>Spiritual</td>
</tr>
<tr>
<td>Sense of humour</td>
<td>Benevolence</td>
<td>Sense of purpose</td>
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<tr>
<td></td>
<td></td>
<td>Critical thinking</td>
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<td></td>
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<td>Flexible and adaptive</td>
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<td></td>
<td></td>
<td>Proactive</td>
</tr>
</tbody>
</table>

The state of resilience for Learning Managers would manifest itself in a Learning Manager who had established networks of support; was ‘workplace ready’ and able to operate in the current schooling sector; was ‘futures oriented’ and able to be imaginative, creative in their thinking and engage in what Stephenson terms ‘planned risk taking’. A Learning Manager who is not in a resilient state will generally be less likely to be in a position to support learners. Recognising that there are conditions that support resilience and practical strategies Learning Managers can use to enhance their resilience creates a positive mindset as outlined below.
Resilience as ‘a condition’ and Dimension 1

Resilience as a ‘condition’ involves exploration of opportunities to minimise risk and to enhance protective factors that support successful adaptation despite significant risk factors. Families, schools or communities may provide these protective factors. I believe that manifestations of resilience (resilience as a ‘state’) indicate an individuals’ potential for resilience but agree with Rutter and Henderson and Milstein that the level of resilience is determined by both internal/personal and environmental factors. Risk factors can stem from personal circumstance or life events. They may be risk factors that affect a particular individual eg a family trauma, or they may be risk factors that apply to a particular group of people eg living in a poor socio-economic neighbourhood.

Recognising that a set of circumstances may put a young person or Learning Manager in a more vulnerable or ‘at risk’ situation is a positive first step because then strategies can be employed to mitigate the risk factors. Many of the social issues that impact on young people have the potential to be risk factors for Learning Managers unless they employ resilience strategies as protective factors. For example, a young person who comes to school having experienced a violent home life the previous evening may require different pedagogical strategies to engage with learning tasks than others from different backgrounds.

Dimension 1 focuses on the notion that positive attitudes and perceptions enhance learning. It is based on the premise that learning is enhanced if our attitudes and perceptions are positive in relation to the classroom climate and the perceived relevance of the learning tasks. The Dimension of Learning teacher’s manual suggests a variety of ways to foster positive attitudes and perceptions.
Dimension 5, Habits of Mind, identifies productive mental habits that can be explicitly taught in order for learners to increase their chances for success in any learning situation. These habits or dispositions, can be seen as the building blocks to future prosperity and wellbeing. By using Costa’s 16 Habits of Mind Learning Managers design pedagogical strategies designed to develop creative thinking, critical thinking and self-regulated thinking. These strategies inform the curriculum, teaching and learning aspect of the Health promoting School model.

The pedagogical strategies articulated by Costa in Dimension 5 are linked to resilience enhancement and mental health promotion by focusing on the issues that impact on young people and families. For example, if faced with a dilemma to do with bullying, young people are taught how to problem solve by using scenarios and graphic organisers to brainstorm alternative solutions and the implications of each alternative. Developing strong Habits of Mind enables students to think critically and to regulate their behaviour. Habits of Mind are performed in response to uncertainties or dilemmas by requiring actions that draw on intellectual behaviour. Students are taught to reflect on situations and consider possibilities and their consequences.

Review Dimensions 1 and 5. In what ways can you see links between these dimensions and your resilience as a Learning Manager? Do you consider strategies for enhancing resilience for young people are part of the Learning Manager’s responsibility? Why or why not?

EXISTING PROGRAMS

Considerable work has been done in Australia to develop programs that link resilience and prevention programs. Following is a brief overview of some of these programs. In Australia, the national initiative to address social-emotional well-being is the MindMatters program. MindMatters was developed largely in response to research carried out on the health and well-being of Australian children and youth. There was a reported need to address the mental health of young Australians and evidence to link social and emotional well-being to young people’s schooling outcomes.

The discussion paper for the Australian National Mental Health Strategy 2000 recognises the role of educators in the lives of children and young people and the benefits for children and young people when organisations that work with
children and young people share goals and appreciate the expertise of the partners. The MindMatters School Matters booklet states:

Research has demonstrated that a sense of connectedness or attachment to school is a protective factor for young people. There is an increasing awareness that schools can engage in deliberate strategies to build a secure and supportive school environment, and to promote health enhancing attitudes and behaviours.

MindMatters is a resource developed for secondary schools and has been distributed nationally. It promotes a whole school approach to mental health promotion using a Health Promoting Schools framework. It provides six booklets for teachers. These resources include background information about research and mental health policies and practices; an overview of the Health Promoting Schools framework; and curriculum units for implementation in classrooms. There are other programs such as:

**Resilience Education and Drug Information:** This program is an Australian Government initiative providing information and resources aimed at strengthening the ability of school communities to respond to the issues of harm minimisation around drug use. The resources include multimedia materials for primary and secondary schools as well as professional development resources for teachers.

**Response Ability:** The Hunter Institute of Mental Health has developed this resource specifically for teacher education. It includes informative videos and booklets such as *Risk and resilience: A teacher’s guide to mental health*. The videos provide scenarios that can be used to initiate discussion with preservice teachers.

**Seasons for Growth:** This is a peer support program designed for primary and secondary schools that is designed to assist young people to understand the grief process associated with change and loss.

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### CONCLUSION

This chapter has contended the following:

- Knowledge of resilience is important for Learning Managers in view of the changing circumstances that are impacting on the work of educators.
- Resilience can be understood as a 3-dimensional construct and aligns with Dimensions 1 and 5 of Dimension of Learning.
- There are explicit strategies that Learning Managers can employ to enhance resilience for themselves and the young people they teach.
- A number of resources have been developed for use in Australian schools.

As futures-oriented managers of learning, Learning Managers are encouraged to look beyond traditional notions of classroom learning and embrace programs that teach about resilience believing that children and young people who are resilient are better able to manage the complexities of life in the 21st century.
Comment on the following statement: “If educators focus simultaneously on the affect and subject content, they prepare students for school success and for life success as well’ (Thomsen, 2002, page 93).
Raphael (2000)

Sheehan, Marshall, Cahill, Rowling and Holdsworth (2000) page 8


Department of Education, Science and Training (2003a)

See the following website: http://www.responseability.org

Hunter Institute of Mental Health (2001)

Graham (1996)

Marzano and Pickering (1997)
In preceding chapters the concept of ‘Learning Management’ has been defined as the capability to design and then execute learning experiences so as to achieve predefined learning outcomes. This chapter expands these learning design ideas and those that were introduced in The rise of the Learning manager: Changing teacher education by specifically examining the 8 Learning Management Questions (LMQs) and the chief considerations that lie beneath them.

The objectives of this chapter are three fold. The chapter firstly locates the idea of learning design in the context of current schooling practice. Second, the chapter examines each LMQ in detail by providing an explanation of each question and a series of design ‘steps’ to follow. Finally, the chapter presents a series of resources to support the Learning Manager in the design and ‘execution’ (the stage at which the learning journey is enacted with learners) of successful learning experiences. To fulfil its objectives the chapter draws on the work of Lynch and Smith and is supported by the Dimensions of Learning research. Readers are therefore advised to read the following in conjunction with this book:


We turn first to the idea of learning design.
THE LEARNING DESIGN IDEA

Lynch and Smith\textsuperscript{323} say they developed their idea of designing learning because it sounded counter-intuitive. That is, if educators want to move teaching and learning from an Industrial Age model in which passive students memorize content and learn without context or meaningful application, to a model in which they are active and engaged by instruction that is productive, then teaching needs to become more self-reflexive and organised. By this we mean ‘designed’ with ‘intended outcomes’ for learners of the ‘knowledge age’. In this context the Learning Manager employs strategies that are ‘evidence-based’ and focused to achieving the intended learning outcomes.

Lynch and Smith contend:

Like any other professional with the obligation to deliver health, legal, architectural, dental or optical services for clients, teachers are obligated to deliver learning services at an appropriate standard to their students and their families. \textbf{Teachers are not free to do what they choose, because there is an expectation that the services will be successful} (emphasis added)\textsuperscript{324}.

Wilson expands their contention by adding that the purchasers of education, its principal investors, parents and students still expect today, that education should result in greater knowledge\textsuperscript{325}. In a knowledge society, where qualifications and capacity to apply what is known are highly valued, success at school now has enormous implications for the future well-being of most individuals and society. It is apparent then that intentional pedagogical design that achieves learning outcomes for all learners must lie at the heart of a professional educator’s repertoire of knowledge and skill.

With these introductory points in mind, the ‘learning design’ methodology becomes the key construct that guides the Learning Manager in the execution of their professional activities. Lynch and Smith\textsuperscript{326} contend that intentional learning design reduces the proliferation of ‘personal teaching pedagogies’, characteristic of traditional teaching practices. This is not meant as a slight on teachers, but a comment about a profession that appears to rely solely on the creative endeavours of individual teachers instead of embracing evidence-based practices, for points of pedagogic reference. Consider this example:

Miss White spends endless hours preparing interesting activities for her Year One class to do. Her classroom is a joy to behold with children’s art and language work displayed on the walls, on-going science and SOSE projects occupying corners and ceiling space. Children’s days are spent preparing and creating displays and working in groups. It is to all intents and purposes, a children’s paradise.

Lynch and Smith challenge the notion of activity-based teaching that relies on the creative endeavours of teachers alone, as detailed in the example above. What grounds might they challenge such approaches?

None the less, Smith and Lynch say they are bound to challenge the idea of such ‘activity oriented’ classrooms because:

As educators, we would need to be sure that the students were enjoying worthwhile learning, that various activities and topics were rank ordered according to their importance, that students were achieving intended outcomes. We would want to be sure that students had some advance organisers and knew what was expected of them while they participated in the activities. Moreover we would want to know that the children were engaged in the same curriculum as most others in the system and how well they achieved the curriculum outcomes; not just that they had. We would also want to know about the kinds of understanding they were developing and the kinds of personal capacities they were creating as a result of being in the classroom. In short, interesting classroom ‘activities’ are necessary, but they are not sufficient if the
expectation is that most children will reach the requirements of the mandated syllabuses and be prepared for an emergent society. The job of ‘teaching’ at all levels is more complex and demanding than making up diverse activities, irrespective of how long those activities may take the teacher to prepare and administer (emphasis added). The teacher is intent on and responsible for ensuring that learning outcomes are reached for each learner. The emphasis here is on ‘client-centred’ rather than ‘teacher-centred’ classroom strategies (pedagogy) alone — achievable standards of content and process knowledge — and on the personal and social capacities that learners develop for later life. Achieving learning outcomes in all learners is a complex and challenging task. To leave it to ‘creative endeavours alone’ is to negate the understandings we have with respect to learning and the research evidence that now defines what constitutes successful learning strategies. These evidence-based approaches, which have been organised as the Dimensions of Learning, are explored in greater detail in a section that follows.

The learning design process itself, in both its mechanical and creative phases, is a matter of marshalling resources to achieve an outcome and is therefore a management issue; hence the term Learning Management. The design process entails quite specific technical knowledge, a set of sequential steps and results in the organisation and ‘processing’ of data into a learning strategy that uses target learning outcomes that mesh with a target learning cohort.

These introductory comments locate learning design in the context of community expectations that all learners make learning gains and that teaching needs to be accorded a professional framework that compels them to consider the key elements of successful learning plans—more on this later. We now turn to locate the concept of learning design in the context of current schooling practice.

**CURRENT SCHOOL PRACTICE AND THE OBLIGATIONS IT SETS FOR THE LEARNING MANAGER**

The industrial era schooling model does have processes that engage the teacher to its learners. These processes are known as ‘curriculum planning’. Curriculum planning is based on the premise that the scope and sequence and the content of instruction—the curriculum—has been predetermined by the State and so the teacher’s role is to plan their actions.

Why would an education system have instituted the notion of curriculum planning?

Before exploring the actions of teachers in this ‘education planning process’ we need to understand the parameters that impact teachers and their work in a curriculum planning context.

First, the school is the chief organiser for education and with this construct the teacher will invariably be ‘assigned’ an age related cohort numbering 25 to 30 students depending upon the sector. For example in the ‘preschool’ context (children aged 5 years) class sizes are set at a maximum of 25, whereas in ‘upper primary’ (children aged 11 and 12) numbers can peak at 30. Common to all sectors in the schooling process is that classes are constructed with children of the same age, irrespective of individual ability or disposition.

Seconds, upon being allocated a class cohort the teacher will review the syllabus that governs the course of study for their learner cohort. Supplementary to this the teacher will often consult a series of ‘source books’ which provide step-
by-step instructions for teaching specific ‘content matter’ and a series of support resources (as is the case for the primary education sector) such as ‘black-line masters’ for photocopying as well as specific information that assists the teacher’s understanding of what is to be taught. Science and mathematics education in particular, lend themselves to this circumstance.

In the ‘curriculum planning’ context little regard is paid to the learners, their learning profile or their learning dispositions. The teacher is forced, in effect, to begin their actions by planning, irrespective of their learners, what they will do to present each subject or course of study to their allocated cohort. In the curriculum planning process the traditions of schooling further assumes that instruction will be facilitated by the readily available ‘blackboard’, ‘set texts’ and a classroom designed for one teacher and one cohort: all standard stock in the schooling model, but very limiting to learning potential. These statements once again, are not meant to slight teachers, but seek to illustrate where the focus is in the curriculum planning process and the pervasiveness of traditional schooling.

One of the most profound changes that have taken place in the curriculum planning process in recent years is the introduction of ‘outcomes-based education’. Outcomes-based education is a shift from an emphasis on traditional inputs, such as teaching activities and hours spent in the class, to results or outcomes. The outcome-based education movement is principally associated with the work of William Spady. The terms ‘outcomes’, ‘standards’ and ‘benchmarks’ are frequently used interchangeably, an outcome is not the name of a concept, or the name of a competence, or the name of an attribute. Outcomes actually happen, somebody does something. Until students can demonstrate competency, an outcome has not been realised. Spady basically defines an ‘outcome’ as a culminating demonstration of learning, something a student can perform or give evidence of in an authentic context. The term ‘outcome-based’ implies that we design and organise all learning experiences around the final intended learning demonstration. Outcomes-based education assumes there are many ways to arrive at the same results: the important thing is that school students do, in fact, achieve outcomes.

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**Why would education systems want to implement a focus on outcomes?**

**How will a focus on outcomes impact the teaching profession?**

---

Outcomes-based education places the learner and their learning needs as the ‘hub’ of curriculum planning and teaching methods used in classrooms — not the teacher or the teacher’s teaching. Pedagogy is now focused towards assisting students in developing specific identified outcomes (as per set curriculum frameworks) utilizing whatever context teachers believe best suits outcome development and student interest. Work programs are likely to be less content focussed and more ‘skill’ or process focussed and with ‘scope’ for student negotiation. Enhanced student performance is anticipated as students are more likely to be engaged in areas of interest and those that pertain to their own learning needs.

Missing in the discussion thus far is a strategy that engages the Learning Manager to consider and organise the essential elements required for achieving defined learning outcomes. In the section that follows we explore such a strategy in the form of the ‘8 Learning Management Questions’.
THE 8 LEARNING MANAGEMENT QUESTIONS: A PROCESS OF LEARNING DESIGN

David Lynch developed the 8 Learning Management Questions (LMQs) to be a set of sequential design based questions that engage a Learning Manager in a process of designing learning experiences that produce intended learning outcomes. The 8 LMQs have two key purposes. Firstly, they act as a ‘professional knowledge organiser’. This means the 8 LMQs enable the Learning Manager to identify and then organise the fundamental consideration, or elements, required for the successful development and execution of learning experiences. For the student-Learning Manager the 8LMQs act as a ‘knowledge organiser’ whereby essential professional knowledge, learnt as part of their preparation program, is organised such they have a bank of ‘considerations’ that they can call upon as they engage with each question. By this we mean the teacher education program should be presented so as to inform each LMQ. This has the effect of providing the student-Learning Manager’s with a ‘ready-reference’ arrangement of knowledge that they can draw upon and unpack when designing and then executing successful learning experiences. The second purpose of the 8 LMQs is to transition ‘teaching’ from ‘teacher centred activities’ to a more responsive ‘learner centred approaches’. The 8 LMQs are therefore a deliberate strategy to draw the Learning Manager to the nuances of the learner and away from ‘the one-size-fits all’ approaches that are characteristic of ‘teaching’ and ‘curriculum planning’.

The 8 LMQs have been developed so that they can be interpreted and actioned by all stakeholders in the learning process. Each question is written in simple, straight-forward language. This allows even the youngest of learners to have impact and active engagement in the development and progress of their learning; but importantly the questions guide the Learning manager to the required elements of a successful learning plan, in the same way that a formula guides a science student.

The 8 LMQs are underpinned by the Dimensions of Learning (DoL) pedagogic framework. DoL provides a bank of evidence-based teaching strategies for developing and delivering specific learning experiences. By this we mean a series of ‘step-by-step’ teaching strategies that have been confirmed by research as underpinning successful learning experiences. The notion of DoL is explored in greater detail in Chapter 10.

SOME POINTS BEFORE WE BEGIN LEARNING ABOUT THE LEARNING DESIGN PROCESS

In the sections that follow each Learning Management question is defined and a series of steps detailed so as to provide the student-Learning Manager with insight, understanding and strategies to answer each question. The first important ingredient in the learning design process is a Learning Management Plan (LMP) ‘template’. A template is located as an appendix 3, at the end of this book. This template is used to compile and record the ‘answers’ to each Learning Management question. A completed LMP appears as Figure 10.2 on page 115.

To assist the Learning Manager in capturing the essential elements required for successful learning experiences designs we make the following points:

- The steps articulated for each ‘question’ scaffold a deep understanding and appreciation of the question and the role each question plays in the learning design process.
- The steps have been framed in the context of learning in a schooling environment, but are generic enough to support Learning Management in any learning situation or context.

The important aspect of the 8 questions is that they are answered. By this we mean, the steps that apply and the level of detail a Learning Manager may include, is commensurate to learning outcomes planned and the scope of the learning plan. With this in mind the student-Learning Manager will need to make judgements about what steps apply — using the scope of the planned learning experience to scope the level of detail required from each question — and modify steps accordingly to suit the learning context.
LETS BEGIN THE PROCESS OF LEARNING DESIGN

By answering the 8 LMQs and unpacking the knowledge areas that lie within each question the Learning Manager is engaging in a process of learning design. The compilation of ‘answers’ is called a ‘Learning Management plan’ (hereafter LMP) and once this phase of the learning design process has been completed the Learning Manager develops a series of ‘sub plans’, known as Learning Experience Plans or a Units of Work (this second phase is discussed in Chapter 10), as a ‘plan of action’.

Before turning to an examination of the 8LMQs, it is important to first locate the concept of a LMP in the bigger scheme of ‘teaching and learning’. A LMP, which should be no larger than one A3 sheet of paper to keep it a ‘ready reference document’, is used as a design proforma to capture the key elements derived from answering the 8 LMQs. Learning Management Question 5, where the actual instructional course is detailed, is called a ‘learning journey’.

The LMP can be used to design learning for any individual or sequential learning context. The volume of work to be delivered is quite secondary to the importance placed on answering the 8LMQs. The student-Learning Manager can use the LMP for a one-off individual lesson situation (for one learning experience plan) or to design a complex and extended period Unit of Work (discussed in Chapter 10). Simply put, the process is generic and fundamental to any size of learning program; be it a single one-off lesson or a series of lessons over the course of a schooling semester.

There is also a language set inherent in each question where the focus is on the ‘learning’ of the program. This is purposeful as it encourages the Learning Manager to reinforce the LMP as a summary of individual learning considerations rather than being a story about student attributes or knowledge elements alone. The process of answering the 8LMQs is what enables the Learning Manager to isolate the most important elements that will contribute to a learning outcome and to select and plan pedagogical strategies accordingly.

Having said this, our own experience with the 8LMQs tends to indicate that there are steps in breaking the hegemony of ‘teacher centred’ approaches inherent in traditional schooling arrangements. It is more than likely that a Learning Manager will be appointed to a ‘school’ and so face ‘age-related cohorts’. With this in mind, the novice Learning Manager is encouraged to connect their ‘age-related cohorts’ with a ‘learner attribute grouping’ and to then design accordingly by profiling their learner cohorts as ‘at standard’ or ‘requiring special consideration’.

We define ‘at standard’ and ‘requiring special consideration’ as those learners who are in an age-related cohort and achieve at the prescribed level or do not achieve at that the predicted level respectively. In a P-10 setting, ‘special consideration’ learners include a range of children from ‘gifted and talented’ students through to those who have some form of impairment that has an impact on learning in all/in any particular subject area. In all identified special consideration cases, profiled learners will require special attention and dealing with them specifically is part of the essential professional knowledge for working in age-related schooling cohorts.

By classifying learners into these two groups, and developing a LMP that caters to each, the novice Learning Manager deals with both the constraints and the diversity of traditional groups. The process of learning design in this circumstance provides the Learning Manager with a manageable approach and one that is attuned to the fundamentals of the Learning Management design process.\(^{35}\)

A completed Learning Management Plan appears as Figure 10.2 in Chapter 10, should you require an exemplar, and a black-line master in the Appendix as Appendix 3.
You may wish to develop more than one LMP (yet inter-related to each other) if you are designing learning experiences for ‘at standard’ and special consideration learners. In most cases the Learning Manager will make such adjustments when they develop specific learning experiences (see Chapter 10).

The 8LMQs are grouped as three distinct design phases as illustrated in Figure 10.1. The discussion that follows explicates each phase in turn.

Figure 10.1 The three design phases

PHASE 1: PROFILING THE LEARNER

<table>
<thead>
<tr>
<th>Phase 1: PROFILING</th>
<th>Profiling: Data collection/analysis and diagnostic processes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. What does the learner already know?</strong></td>
<td>Prior learning experiences — formal/informal</td>
</tr>
<tr>
<td>The current achievement level</td>
<td>o Knowledge sets achieved/contexts</td>
</tr>
<tr>
<td></td>
<td>o Vocabulary/concepts learnt</td>
</tr>
<tr>
<td></td>
<td>Outcomes achieved to date</td>
</tr>
<tr>
<td></td>
<td>The learning cohort’s profile (specific/broad)</td>
</tr>
<tr>
<td><strong>2. Where does the learner need/want to be?</strong></td>
<td>Setting Outcomes</td>
</tr>
<tr>
<td>The learning outcomes to be achieved</td>
<td>This question is about setting the focal learning outcomes or learning goals. There are two key types of learning outcomes:</td>
</tr>
<tr>
<td></td>
<td>o Formal learning outcomes</td>
</tr>
<tr>
<td></td>
<td>o Informal</td>
</tr>
<tr>
<td></td>
<td>o Related to the personal goals and aspirations of the learner</td>
</tr>
<tr>
<td></td>
<td>o Learning goals indirectly related to formal learnings</td>
</tr>
<tr>
<td><strong>3. How does the learner best learn?</strong></td>
<td>Connecting the learner and the learning</td>
</tr>
<tr>
<td>Learning as a science</td>
<td>DoL considerations</td>
</tr>
<tr>
<td></td>
<td>o DIM1: Attitudes and Perceptions</td>
</tr>
<tr>
<td></td>
<td>o DIM5: Habits of Mind</td>
</tr>
<tr>
<td></td>
<td>The Learner profile:</td>
</tr>
<tr>
<td></td>
<td>o Preferred learning styles/ascertained needs</td>
</tr>
<tr>
<td></td>
<td>o Preferred learning environments/modes</td>
</tr>
<tr>
<td></td>
<td>o Personal likes/dislikes</td>
</tr>
<tr>
<td></td>
<td>o Personality traits which impact upon learning</td>
</tr>
<tr>
<td></td>
<td>o Experiences which have impacted (+, -)</td>
</tr>
<tr>
<td></td>
<td>Researched best practice</td>
</tr>
</tbody>
</table>
The first three questions, which make up Phase 1 of the learning design process, orientate the Learning Manager to their learners in a process broadly referred to as ‘profiling’:

LMQ1: What does the learner already know?
The current achievement level

LMQ2: Where does the learner need and want to be?
The learning outcomes to be achieved

LMQ3: How does the learner best learn?
Engaging with learning as a science

Phase 1 is a significant break from the traditions of teaching where ‘curriculum planning’ inclines the teacher to first consult a syllabus document for an age related cohort, irrespective of the profile of learners. In the Learning Management design process the learner and their learning profile are the first and foremost considerations. Let’s begin with LMQ1.

LMQ1. What does the learner already know?
The Current Achievement Level

Profiling: Data collection/analysis and diagnostic processes

LMQ1 is about the learner’s current state of achievement.

LMQ1 draws the Learning Manager to the learner; that is information about the learner. In a classroom sense, this will mean meeting with previous ‘teachers’, conducting a series of pre-tests, reviewing past performance based upon work samples and the other documentation maintained as part of the teaching/learning process and interviewing the learner.

Question 1 also aims to dovetail previous Learning Management Plans by factoring what has already been achieved. The product of LMQ1, in a ‘schooling context’, is that the learner cohort is profiled: students are grouped as ‘at standard’ and ‘special consideration’ learners ready for the Learning Manager to implement the teaching strategies (pedagogical practices) that are the outcomes of LMQ5.

In this question you aim to collect and compile information from which you are able to:

1. Classify your learners as ‘at standard’ or ‘requiring special consideration’ and
2. Have foundation information for developing LMQ2.
Let's review ‘at standard’ and ‘special consideration’ learners:

- **At standard** learners we defined as those students who are in an age-related cohort and achieve at the prescribed level.
- **Special consideration** learners we defined as those students who are in an age-related cohort and are not achieving at the prescribed level. These students require special consideration for a variety of reasons which many include: gifted and talented, learning disability or difficulty, disengagement from a particular content or subject area etc.

A LMP should be reflective of both ‘at standard’ and ‘special consideration’ learners/groups within the learning cohort.

In some instances, a separate (yet linked) LMP, that details the ‘special consideration’ learners/groups and their specific strategies should be developed.

**The Steps to Follow**

**Step 1**
Begin by broadly thinking about what your planned ‘learning journey’ will focus on? At this stage you are aiming to decide the broad theme of what your learners are to achieve. This step frames the scope of the plan, by giving it an initial focus. The following questions might be useful:

- What do I want my learners to learn?
- Is this a formal or non-formal learning journey?
- If formal, what key learning areas does this knowledge come from?
- Why am I wanting my learners to learn this knowledge?

Record the focus of your learning plan as a heading in the appropriate place on your LMP. You will come back to this step when you begin planning for LMQ5.

**e.g.**
A LMP that enables learners to count to twenty using ones, odd and even intervals.

**Step 2**
- Locate information/data that will provide you with evidence about your learner’s current achievement level:
  - Results from previous Learning Management plans
  - Student work portfolios (previous classes)/work samples
  - Student Interviews (as applicable)
  - Parent Interviews (as applicable)
  - Support staff records/intervention program outcomes
  - Observation and summative and pre-assessment data
Step 3
Conduct an interview with your learner or as a whole class group/learning cohort. The concept of ‘interview’ is broad and can include one-on-one or as a whole class discussions. The aim is to ‘get to know’ your learners. Ask questions that provide you with a ‘context’ and a ‘shared understanding’ about their learnings; their learning achievements; their learning aspirations; their learning dilemmas. In particular seek to confirm and clarify information that you gleaned as part of Step 2. Is this how your learners see what you’ve found?

Step 4
Record the information you have compiled on your Learning Management plan at LMQ1 as a series of ‘dot points’ summaries.

Use a referencing system to link dot point summaries in LMQ1 to a portfolio of evidence that can be called upon when specific and/or more detailed information is required. It is important to maintain the LMP as a ready-reference document: hence dot points.

Step 5
Confirm the data collected. Use this step to confirm that information obtained through Steps 1, 2 and 3 is reliable and up-to-date (i.e., clarify, qualify, evaluate, validate).
- Conduct pre-tests to ascertain learner readiness and achievement levels if information collected through Step 2 and 3 are vague, inconclusive or incomplete.

Step 6
This step comprises data analysis. Use this step to make judgements about where your learners ‘are at’ with respect to your immediate learning design intentions (from Step 1).

- What are the fundamentals required for learners to begin your intended learning plan?
- What should they know at this stage?
- How well do they know it?
  - Consult a curriculum document for points of reference if formal in nature (use as benchmarks)
- What are the abilities, strengths, weaknesses, challenges, opportunities, ‘beginning points’ for the focal learning group?
- Decide where your starting point is.
  - Confirm that your intended starting point for teaching is correct. If not factor a new starting point.

e.g.
- Formal diagnostic assessments
- Informal quizzes
The Rise of the Learning Manager

Step 7
Use this step to classify each learner according to the ‘required’ learning assumptions you made in Step 6. Develop a template that organises learners as:

- ‘at standard’ — display the required pre-learning attributes and are ready and
- ‘special consideration’ — do not display the required pre-learning attributes and so require special and further consideration.

The outcomes of this step will be a list of ‘at standard’ learners and a list of ‘special consideration learners’. The ‘at standard’ learners will invariably form the main teaching cohort in a classroom situation, while ‘special consideration learners’ will require individual or small group strategies to support them. This support will be identified and plans for actions made in LMQ6.

Example: Learning Manager Bill intends teaching his Year 1 class to count to twenty using ones, odd and even intervals:

<table>
<thead>
<tr>
<th>Learner</th>
<th>Appendix Ref</th>
<th>Attributes that are required for learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Sue</td>
<td>A1</td>
<td>√</td>
</tr>
<tr>
<td>Warren</td>
<td>A2</td>
<td>√</td>
</tr>
<tr>
<td>Steven</td>
<td>A3</td>
<td>√</td>
</tr>
<tr>
<td>Katrina</td>
<td>A4</td>
<td>√</td>
</tr>
<tr>
<td>Wally</td>
<td>A5</td>
<td>√</td>
</tr>
<tr>
<td>Stacy</td>
<td>A6</td>
<td>√</td>
</tr>
</tbody>
</table>

Step 8
Record your ‘answers’ or findings as ‘summaries’ on your LMP using ‘dot points’ and a coding system (or as a table as illustrated above) linked to an appendix (where supporting information should be located). In many cases your ‘cohort identification’ chart is the extent of LMQ1 findings.

For an individual learner LMQ 1 might look like:

Example: LMQ1 answers developed by Learning Manager Susie for ‘Katrina’ in Year 1 who will be taught to count to 20 by ones, and odd and even intervals.

**What does my learner already know ... (about counting)?**

- Can count to 20 by ones
- Can’t count to 10 by even intervals
- Can’t count to 10 by odd intervals
- Can’t define an even and odd number
LMQ2 is about the setting of focal learning outcomes. These learning outcomes are the chief focus for the learning plan and are used as a reference for all questions that follow. Particular reference is made to LMQ2 at LMQ 5 (the learning journey stage) and LMQ7 (the assessment strategy).

LMQ2 is about learner ‘needs and wants’ and so learning outcomes may well be derived from negotiations with the learner (or their parent/guardian). Consulting the learner is important as it ensures the learner has ‘ownership’ of the learning plan and therefore more likely to participate to their full capacity. Learning outcomes in the classroom situation have a predominately formal basis and so syllabi and curriculum documents are the standard point of reference when establishing formal learning outcomes.

Learning outcomes can be developed as formal or informal learning experiences.

**Formal outcomes** are those as stipulated in syllabus and curriculum documents by education and/or schooling authorities. In these cases the learning outcome will be a ‘cut and paste’ from a curriculum document.

**Informal outcomes** are those outcomes that are defined for life, living and conduct within society. These generally have an association with personal or social development. In the 2000 epoch, these types of learning outcomes have greater prominence in the ‘classroom learning plan’ particularly as society changes and schools inadvertently have to fulfil roles that were once managed by parents and other care-givers. In these cases the learning outcomes will largely be developed by the Learning Manager.

Learning outcome statements are organised as declarative and procedural knowledge elements because the strategies that are devised in LMQ5 are based on the knowledge ‘type’ to be taught.

LMQ2, in effect, defines the goals or success indicators of the learning program and therefore becomes the starting point, in a backward mapping activity, for the learning strategies that are detailed in LMQ5. It is important that you get the learning outcomes statements right as they impact the LMQs that follow.
The Rise of the Learning Manager

The Steps to Follow

Step 1
Using the profile of learners developed in LMQ1 think about what you want the learner to subsequently be able ‘to do’ and ‘to know’ as a result of this Learning Management plan.

Fundamentally there are two types of knowledge — declarative and procedural — that informs a learning outcome. These two types of knowledge determine the teaching/learning strategies to be enacted in LMQ5.

<table>
<thead>
<tr>
<th>Declarative Knowledge — Content and information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge that the learner learns (knows) or understands. There are three sub-types:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organising Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concepts, generalisations and principles</td>
</tr>
<tr>
<td>E.g., Learning Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause/effects sequences, time sequences</td>
</tr>
<tr>
<td>E.g., heat water it turns to steam</td>
</tr>
<tr>
<td>E.g., Aborigines — Captain Cook — Migration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vocabulary Terms and Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facts, vocabulary/terms</td>
</tr>
<tr>
<td>A computer is a device that …</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedural Knowledge — Processes and skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge whereby the learner is able to do something. There are two sub-types:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures that involve the execution of many interrelated component parts that have subcomponents</td>
</tr>
<tr>
<td>E.g., the design and delivery of a learning experiences</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>A single set of steps that may (algorithm) or may not (tactic) have to be performed in a specific order</td>
</tr>
<tr>
<td>E.g., a maths formula (algorithm)</td>
</tr>
<tr>
<td>E.g., getting mum to lend you the car (tactic)</td>
</tr>
</tbody>
</table>

Step 2
Write your learning outcome statements using the sentence stem: The learner will be able to: followed by a series of dot points — arranged according to their knowledge type — to frame your outcome statement. This language set makes the choosing of strategies for LMQ5 and LMQ7 easier as the elements are tangible and concise statements that can be ‘ticked off’.

The learner will be able to:
1. (Declarative knowledge)
   a. Articulate the properties of an odd number
   b. Articulate the properties of an even number

2. (Procedural knowledge)
   a. Count to 20 using intervals of one
   b. Count to 20 using odd intervals
   c. Count to 20 using even intervals
As a novice, be sure to make each learning outcome statement simple by having only one focal attribute per outcome statement:

- ✓ Articulate the properties of an odd number
- ✗ Articulate the properties of an odd, even and prime number

Consult the relevant syllabus/KLA documents to ascertain formal learning outcome statements. Syllabus modules also provide indicators as to what activities are ‘at standard’ for class (year level grouping).

LMQ3 is about engaging with the science of teaching and learning.

LMQ3 encourages the Learning Manager to draw on related evidence-based information to support their understanding of how their learners best learn. The question specifically engages the Learning Manager to:

- **Reviewing best practice** as it relates to the ‘content area’ that is to be taught.
- **Factor Dimensions** One and Five of the DoL research[^336] as the foundations for successful learning.
- **Factor the specific learning needs and peculiarities** of the target learner/learning cohort as context for dealing with learners.

Without LMQ3, Learning Managers are caught in a cycle of attempting to ‘do the same better’ whereas the learning design message is that effective practice is doing better by knowing what is best.

### The Steps to Follow

**Step 1**

Begin this question by conducting a literature search (i.e., research) in the discipline/learning area that you seek the learner to make learning gains in.
Find out what current research says about teaching and learning in the discipline/learning area under focus.

Review core underpinnings from Key Learning Area sourcebooks and supporting material.

Use these questions to focus your research:
- What are the developmental sequences for the knowledge your learners will learn?
- What are the specific strategies/considerations one must factor?
- What are the essential learnings that make up the discipline area?
- What are the variables that may impact the success of your learning plan?
- What constitutes a special consideration learner in the discipline area?

Creating a 'matrix' (table) that profiles your learner cohort is a valuable tool in this context as it enables you to map and track (through additions) learner development and progression, shifts and changes in attitudes and perceptions, and their work habits in the learning environment. See the example that follows.

<table>
<thead>
<tr>
<th>Name</th>
<th>Identified learning need</th>
<th>Leisure and sporting interests</th>
<th>Preferred learning style</th>
<th>Preferred assessment mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexis</td>
<td>Attention to tasks</td>
<td>Beach sports</td>
<td>Discussion</td>
<td>Small group work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Music</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xavier</td>
<td>Literacy skills</td>
<td>Computer games</td>
<td>Using concrete materials</td>
<td>Individual and one-on-one</td>
</tr>
</tbody>
</table>

Step 2
Reflect on the information you glean as part of LMQ1 to ascertain what specific strategies are required to support learners in a context of their peculiarities as learners. Consider:
- Preferred learning styles
- Preferred learning environments/modes
- Personal likes/dislikes
- Personality traits which impact upon learning
- Experiences which have impacted (positively, negatively)

Step 3
Record findings on your LMP as ‘dot point summaries’ or a ‘matrix’ of attributes/findings and link these through a coding system to a portfolio of evidence/materials or as links to reference materials.

Step 4
Scan the learning environment to identify and review the attitudes and perceptions that prevail in each learner and identify those that need to be established for learning to take place.337
Dimension 1: Attitudes and perceptions about learning
Attitudes and perceptions affect students’ ability to learn. For example, if students view the classroom as an unsafe and disorderly place, they will likely learn little there. Similarly, if students have negative attitudes about classroom tasks, they will probably put little effort into those tasks.

Step 5
Identify the habits of mind (HoM — Dimension 5 of DoL) that need to be established in learners so as scaffold their engagement with the focal discipline area.

There are 16 HoMs. The Learning Manager should aim to be working on all 16 Habits of Mind (HoMs) consistently and progressively with their learning cohort, however in this context, aim to focus on no more than 5 HoMs that are particularly relevant to or essential for optimum learning in the specific learning context your are designing.

Use the HoM design template to identify 3 to 5 HoMs that will support learners to engage with the defined learning journey.

Dimension 5: Productive Habits of Mind (HoMs)
HoMs are desirable mental habits that align with positive attitudes and perceptions to form the foundation for enhanced learning experiences.

For more information about Dimension 5 refer to pages 298–301 in Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.

The 16 HoMs as referenced in this text are specific to the work of Art Costa and Bena Kallick which further elaborates the HoM work as referenced in the DoL teacher’s manual. An introduction to the Costa/Kallick work is best found at www.habits-of-mind.net/. Reference to this site will assist in selecting appropriate strategies and activities to achieve intended learner outcomes in the specific HoMs you are designing learning for.

Step 6
Record key information gleaned on your Learning Management plan as further ‘dot point summaries’/reminders and link these through a coding system to its source (for later reference). Use this template to frame your LMQ3 ‘answers’:
**LMQ3: How do my learners best learn (numeration)?**

To ensure learning gains are made I will:

(Researched Best Practice)

- Ensure learners have access to concrete materials and models

(Learner Peculiarities)

- Work well in group situations that have a practical nature

(Habits of Mind to Establish)

- Persisting

(Attitudes and Perceptions to Foster)

- Mathematics has a logic and plays a role in most human activities

**Researched best practice and the learner peculiarities provide context and become chief considerations for learning strategies that are developed in LMQ5. By contrast, the notion of habits of mind to establish and attitudes and perceptions to foster may have to be factored as preliminary and/or ongoing specific learning experiences (as part of the overall learning journey). This decision will depend on the role such elements need to play in the learning journey. These specific experiences need to be factored in LMQ5.**

**PHASE 2: STRATEGISING AND DELIVERY**

<table>
<thead>
<tr>
<th>Phase 2: STRATEGISING and DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. What resources do I have at my disposal?</td>
</tr>
<tr>
<td>The means</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>5. What will constitute the learning journey and therefore what is the best context for the learning?</td>
</tr>
<tr>
<td>The learning journey</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>6. Who will do what?</td>
</tr>
<tr>
<td>The learning team</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
The next three LMQs are about ‘designing specific learning experiences’. There are three questions in this phase:

**LMQ4: What resources do I have at my disposal?**  
The Means: Through which to conduct the learning program

**LMQ5: What will constitute the learning journey and what therefore is the best context for learning?**  
The Learning Journey: What, where and how

**LMQ6: Who will do what?**  
The Learning Team

By using LMQs 4 through 6, the Learning Manager develops a learning experience sequence, known as a learning journey. In doing this the Learning Manager uses the first three ‘answers’ as the contextual profile.

LMQ4 is the point at which the Learning Manager identifies ‘the what’s available’ to support the proposed learning plan.

**LMQ4 sets the parameters for programming, giving consideration to that fact that Learning Managers operate within a framework of limited resources (however entrepreneurial activity is encouraged). It is through Question 4 that the wide range of resources: physical, financial and technological are audited in preparation for instruction. Human resources are considered here but are planned in greater details as part of LMQ6. LMQ4 is where the Learning Manager ascertains the time available.**

### The Steps to Follow

**Step 1**
Begin by reviewing information obtained as part of LMQ3. What are the elements/resources that ‘best practice’ or the peculiarities of the discipline area to be taught, or the learner more specifically, require for the learning outcomes to be achieved?
If you are going to teach procedural knowledge this will require materials that will enable the learner to practice the skill. For example, teaching learners to play basketball will require the use of a basketball and a basketball court, not to mention enough learners to field two teams.

Step 2
Use a template, such as the one that follows, to organise the information you glean for LMQ4.

<table>
<thead>
<tr>
<th>Learning outcome (LMQ2)</th>
<th>Resources required</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Articulate the properties of an odd number</td>
<td>• Counting board</td>
</tr>
<tr>
<td>• Articulate the properties of an even number</td>
<td>• MAB Blocks</td>
</tr>
<tr>
<td>• Count 20 using intervals of one</td>
<td>• Small group areas</td>
</tr>
<tr>
<td>• Count 20 using odd intervals</td>
<td>• 3 x 30 minute teaching segments over a period of a week</td>
</tr>
<tr>
<td>• Count 20 using even intervals</td>
<td></td>
</tr>
</tbody>
</table>

Step 3
Review LMQ4 (resources required) once you have completed LMQ5, as your strategising may reveal the need for other or differing resources.

LMQ5: What will constitute the learning journey and therefore what is the best context for the learning?
The Learning Journey
Planning to achieve learning outcomes

LMQ5 is the point at which the ‘learning journey’ is strategised — a course of action planned and then detailed.

LMQ5 is the instruction design stage where the overall learning journey is conceptualised into a broad series of sequential learning experiences. The specifics of each learning experience are developed after the LMP is complete and prior to its staging. Chapter 10 explores the notion of developing learning experiences. As stated earlier, this is where many so-called traditional teachers would have started in a curriculum planning process. To begin planning at LMQ5, the Learning Manager must first synthesise findings from LMQs 1 through 4. This will connect the intended instructional
The Learning Management Plan

plan to the learning context, instructional strategies to the learner and the overall strategy to the learning outcomes that were established in LMQ2.

It is the established learning outcomes in LMQ2 that direct the Learning Manager to the specific instructional strategies to be used. The specific instructional strategies for LMQ5 are contained in Dimensions 2, 3 and 4 of the Dimensions of Learning instructional design framework.

Before we begin a closer examination of LMQ5, let’s recap what we have discussed thus far, with respect to the 8LMQs, and in doing so provide an introduction for what we are about to explore. Figure 9.2 illustrates the interplay that occurs between each LMQ.

**Figure 9.2 The interplay of the 8 Learning Management Questions**

In effect LMQ1, 3 and 4 provide the context and identify the fundamental considerations for the planned learning journey. LMQ2 becomes the focus of the learning journey as the notion of predefined learning outcomes set the goals or ‘outcomes’ of the learning journey. These outcomes provide guidance to LMQ5, where actual learning strategies are developed and to LMQ7 where one checks to see that learning outcomes have been achieved. LMQ 8 becomes the point where the overall outcomes of the learning journey are compiled as a reference for the next learning journey.
The Rise of the Learning Manager

Let’s now continue our exploration of LMQ5. In this section of the chapter we overview the key elements of LMQ5 and the considerations that lie beneath them. A more detailed examination of LMQ5 occurs in Chapter 10 where the notion of developing learning experience plans and units of work occurs.

**The Steps to Follow**

As you progress through each step for LMQ 5, use the tabular format that follows to record your sequential strategies (only record the title of each proposed learning experience).

<table>
<thead>
<tr>
<th>LEP Sequence No.</th>
<th>Lesson sequence/Outcome focus (LMQ2)</th>
<th>Learning Experiences What is to be taught? What are the Sequential Strategies</th>
<th>Main DoL focus (LMQ4)</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 (etc)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consider this table a work in progress and change/modify as contingent issues and student progress/new information becomes available. The specifics of each learning experience are detailed on a ‘learning experience plan’ or a ‘unit of work’ template which is discussed in Chapter 10. When developing units of work, LMQ5 only comprises a succinct statement that describes what the unit is about.

**Step 1**

**Review data** compiled as part of LMQ1, LMQ2, LMQ3 and LMQ 4. In reviewing this data you are in effect developing a broad understanding of:

- What your learner knows or doesn’t know — LMQ1
- What you aim to achieve — LMQ2
- How your learner best learns — LMQ3
- What constitutes best practice — LMQ3
- The ‘things’ you have to factor — LMQ3
- The ‘things’ you have available to implement the learning journey — LMQ4

The result of completing this step is a detailed understanding of your learner, the scope you have for achieving defined learning outcomes and the chief considerations that lie at the heart of the learning journey.
Step 2
You now need to make judgements about the status of the overall learning journey, with respect to your learner’s current learning achievement (and your review at Step 1), and so identify what overall Dimension of Learning strategy applies. For example:

| If New knowledge to be learnt | → DoL DIM2 |
| If Knowledge held requires extending and refining | → DoL DIM3 |
| If Knowledge held requires to be used meaningfully | → DoL DIM4 |

Dimensions of Learning assist the Learning Manager by providing a bank of teaching and learning strategies that are ‘followed’ when each individual learning experience plan is developed and then delivered.

Refer to the following:

- **DIM2**: For learning programs that have outcomes focused on ‘acquiring and integrating new knowledge’ the Learning Manager refers to Dimension 2 strategies.

- **DIM3**: If the learning program seeks to ‘extend and refine knowledge’ that exists of has been previously learnt then Dimension strategies are engaged.

- **DIM4**: If the program seeks to ‘use knowledge learnt so that it is meaningful and connects the learner to the practical and meaningful circumstance of such knowledge, then Dimension 4 strategies are consulted.

Choose the appropriate DoL strategy. This choice provides you with a bank of appropriate teaching and learning strategies to use when developing individual learning experiences. Record this at LMQ5 on the table as ‘Main DoL Focus’.

Step 3
Begin thinking about:
- What would I teach first? What should I be revising so they are prepared for this learning journey?
- What logically follows? What would I teach next and so forth?
Keep in mind:
LMQ2 is what you are aiming for at the learning journey’s end.

Step 4
Reflecting on LMQ3 data ascertain if your learner has the required Attitudes and Perceptions and HoMs to support learning focused through LMQ2. If not your first learning strategy needs to focus on developing the required Attitudes and Perceptions and HoMs in your learners. Record the title of these experiences on your LMQ5 Table. Otherwise move onto Step 5.

Record strategies on LMQ5 as a series of defined Attitudes and Perceptions and/or HoM learning experiences.

Consult the following resources:

- Attitudes and Perceptions (DIM1), see pages 39–41 in Marzano, R. J., & Pickering, D. J. et al. (1997). *Dimensions of learning teacher’s manual* (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.

Step 5
Think about the overall learning journey you are to engage in. Use the notion of LMQ2 as your end point. Consider the time you have available (LMQ4) and begin to conceptualise a course of action. By this we mean begin to plan what each sequential Learning Experience will comprise; knowing you aim to achieve the outcome statements from LMQ2.

Think:
What would I teach first?
What do my learners have to know first?
What logically follows?
What would I teach next and so forth so as to achieve elements outlined in LMQ2?
You are now aiming to break your overall learning journey into manageable ‘bits’ which are referred to as Learning Experiences or Lessons. The development of specific Learning Experiences (Plans) is detailed in Chapter 10.
For example, if you have five one hour blocks of time available to achieve the defined learning outcomes focused to learning to ride a bicycle, you can logically plan 5 x 1 hour learning experiences (the actual learning focus will determine the appropriateness of such time segments). Your broad instructional plan might look like this:

- **Learning Experience 1:** Explain the component pieces of a bike
- **Learning Experience 2:** Outline the safety gear required and the road rules that apply and when
- **Learning Experience 3:** Explore the notions of balance and propulsion using feet
- **Learning Experience 4:** Revise previous learning experiences
- **Learning Experience 5:** Begin practice
- **Learning Experience 6-7:** Continue practice

**LMQ5 is recorded on a LMP as a learning journey or Learning Experience Sequence.** In effect this ‘organises’ or ‘references’ a series of specific learning experiences (lesson plans) (see Chapter 10). Each learning experience (lesson plan) serves to break the LMP into manageable ‘instruction bits’ that sequentially deliver on the defined outcomes identified in LMQ2.

**Step 6**
Record each sequential learning experience (as a title only) using the template supplied for LMQ5.

**Step 7**
Review each planned sequential learning experience and identify its correlate learning outcome statement (from LMQ2). Identify which outcome statement (or statements) applies to each planned learning experience. Check to see that all learning outcomes have been incorporated from LMQ2. If not revise your planned sequential learning experiences and make changes accordingly. Ensure the learning journey reflects the overall intention of the LMP; that it reflects the sum of all defined learning outcomes: and as captured by the title on your LMP.

**Step 8**
As Chapter 10 outlines, the Learning Manager will return to LMQ5 after they have completed the 8 LMQs to expand each planned learning sequence into a series of specific learning experience plans or a unit of work, for large trans-discipline units. Continue now to LMQ6.
LMQ6 is a realisation that Learning Managers are not the only ‘teacher’ in a contemporary student’s life and that many agents such as teacher aides, sporting coaches, experts in the field, grandparents, parents, technology-based learning programs, the internet, social organizations, etc can be enlisted as part of the overall learning strategy to deliver on the defined learning outcomes. LMQ6 seeks to ‘de-privatise teaching’ by encouraging teachers to work together and to utilise available ‘others’.

LMQ6 enables the Learning Manager to move away from the ‘age related cohort’ to ‘learner needs-based cohorts’ where groups of Learning Managers and para-Learning Managers are enlisted to harness talents and expertise. LMQ6, together with LMQ4, enables the Learning Manager to create at standard and special consideration learner profiles and to organize them into manageable learning situations for delivery by ‘others’ or other arrangements.

LMQ6 is about marshalling various people to assist in the execution of the plan.

The Steps to Follow

**Step 1**
Identify ‘the people’ who are able to constitute your ‘learning team’. It is important to mention ‘learning peers’ can be enlisted as a member of the learning team. Learning peers are those learners who are also participating in the learning journey.

Review each proposed sequential learning experience in LMQ5. Ask yourself who (how many people) is required to assist in delivering each. What role would you require each team member to play? This could mean the use of technology-based learning systems.
Step 2
Record the identified members of your learning team together with a notion that indicates your plan for their role/function. The specifics of their role/function is detailed when specific learning experiences are developed for LMQ5 in Chapter 10.

PHASE 3: ASCERTAINMENT AND REPORTING

<table>
<thead>
<tr>
<th>Phase 3: ASCERTAINMENT AND REPORTING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7. How will I check to see the learner has achieved the learning outcomes?</strong></td>
</tr>
<tr>
<td>The Evidence</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>8. How will I inform the learner and others about the learner’s progress?</strong></td>
</tr>
<tr>
<td>The Report</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The last series of LMQs are about ‘ascertaining whether the learning outcomes have been achieved’ and strategising the reporting of learning outcomes to the learner and key others.

There are two questions that make up this phase:

**LMQ7: How will I check to see the learner has achieved the learning outcomes?**
The Evidence

**LMQ8: How will I inform the learner and others about the learner’s progress**
The Report
LMQ7 is a focus upon identifying evidence, which when collected, is to be used to ascertain whether the learning outcomes (from LMQ2) have been achieved.

LMQ7 is a direct correlate to that of LMQ2 and operates to confirm that LMQ5 strategies have been successful. This means the Learning Manager must choose assessment strategies so that they reveal the extent of achievement with respect to the defined learning outcomes (LMQ2).

The Steps to Follow

Step 1
Revise the learning outcomes for the learning journey from LMQ2.

LMQ7 is a direct correlate to that of LMQ2 and operates to confirm that LMQ5 strategies have been successful. This means the Learning Manager must choose assessment strategies so that they reveal the extent of achievement with respect to the defined learning outcomes (LMQ2).

Ask yourself: Have LMQ5 strategies have been successful? This means the Learning Manager must choose assessment strategies so that they reveal the extent of achievement with respect to the defined learning outcomes (LMQ2).

Step 2
Develop the idea of an assessment task and /or plan a regime of assessment activities.
Develop an authentic assessment activity to reflect the outcome being ‘performed’ and/or ‘demonstrated’ (see Chapter 11 on portal tasks)

If the knowledge type is procedural an authentic assessment is one where the learner ‘demonstrates’ the procedure.

If the knowledge type is declarative an authentic assessment is one where the learner can articulate or recall the declarative elements.

**Step 3**
Record your findings for LMQ 7 as a series of assessment strategies.

Give thought to building LMQ7 activities into the body of learning strategies (as part of LMQ5) so learners in effect *learn by doing* and in effect create a ‘portfolio’ of achievement evidence.

Ascertain how you will record and/or compile and manage the data you are to collect.

**LMQ8. How will I inform the Learner and others about the Learner’s progress?**
*The Report*
*Informing learning stakeholders*

LMQ8 is about informing stakeholders about learner progress.

LMQ8 is a planning of proformas and processes that are to be used to inform the learner and key stakeholders, including the parents/caregivers and the wider community, as relevant, about progress. This stage of the process deals primarily with the extent to which outcomes have been achieved and from which the next learning journey will develop.

This is an opportunity to engage the learner (and his/her ‘key others’) and other members of the teaching/learning team in dialogue about the learner and his/her progress.
This LMQ is also about formally reporting the learner's progress in terms of the planned and agreed learning outcomes (from LMQ2).

The process of reporting is an ongoing occurrence throughout the learning journey and should also be used as a motivator or feedback loop for the learning during instruction.

Reporting in a formal sense, concludes the learning journal, and is often conceptualised as a Report Card in traditional learning environments.

The Steps to Follow

Step 1
Identify who the stakeholders are for reporting. Make judgements as to what each needs to know, when they need to know it and in what quantities and in what format. Plan how you will provide ongoing feedback to your learner during instruction.

Step 2
Reflect on the actual learning outcomes (LMQ2) and the context of the learning journey (LMQ5) to develop a reporting framework.

- Report Cards
- Statistical representations (graphs)
- Performances
- Products developed
- Summaries of outcomes
- Standardised tests
- Oral feedback
- Self-assessment

Step 3
Record your strategies on the LMP at LMQ8. The specifics of these strategies will be expanded when individual learning experiences are developed as part of LMQ5.

Step 4
Give consideration to the information required for the next Learning Management Plan at LMQ1.

Informal reporting: This form of reporting occurs throughout the learning journey and can take many forms: e.g., 'oral feedback', 'progress interview', an incentive award, (or in a more formal manner) an 'interim report', etc. This form of ongoing reporting is a key motivator for continued learner and must be recognised as essential to effective, intentional instructional design.
The notion of developing Learning Experience Plans and Units of Work, as extrapolations of LMQ5, is detailed in Chapter 10.

Formal reporting: Using the proceeds of analysed assessment data, the Learning Manager designs a reporting 'template'; one which provides the learner and key others with a summary of the learner's progress in terms of the planned and agreed learning outcomes. Key elements to be included:

- Planned and agreed outcomes detailed as the reporting focus
- Learning journey is summarised
- Data collected, as part of LMQ7, is detailed with appropriate annotated analysis giving the 'reader' an objective overview of key findings
- Learner's progress is summarised in terms of the outcomes (in contrast to findings)
- The learner is asked to provide their own details regarding their progress as a 'learner centred summary' of their learning progress
- The Learning Manager concludes the report by detailing a series of recommendations which inform subsequent Learning Management plans.

Step 5
Now begin developing Specific Learning Experience Plans or a Unit of Work, using information gleaned through the 8 LMQs and summarised at LMQ5.

At this point in the learning design process you will have a completed LMP. The task now is to plan your specific ‘teaching’ actions by developing a series of individual learning experiences or lessons plans. In Chapter 10 the commentary continues where you will be instructed into the steps associated with this next learning design phase. A couple of key points to mention before you begin designing and then delivering learning experiences:

a. By developing a LMP you have engaged in a process of learning design. This means you have collected data, analysed it for points of reference to your learner/learning cohort and then selected a series of evidence based teaching and learning strategies --- known Dimensions of Learning --- to achieve defined learning outcomes in learners as your LMQ5 strategy.

b. Dimensions of Learning strategies become your ‘instructional recipe’ and the specifics need to be detailed/ recorded using a series of Learning Experience Plans.

c. You will seldom get a LMP right first time every time. There are many contingent things that emerge in teaching and learning environments. Always consider a LMP a work in progress and set out to modify it as professional reflection and contingent issues dictate. This will be particularly so of LMQ5 and LMQ7.
Having now read through this chapter, your task now is to develop a LMP. We suggest you complete your first LMP based on an individual learner for learnings in an informal arena (i.e., not a curriculum area but an area of learning pertinent to the learner — for example, learning to ride a bike, learning to tie one’s shoelaces, etc). This simplifies the process in your first attempt. Treat this chapter as a ‘how to manual’ and work through the steps with respect to your focal learner.

A completed LMP appears in Chapter 10, if you require an exemplar.

Continue onto Chapter 10 where the commentary explores the notion of developing learning experience plans and Units of Work.

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322 Smith and Lynch (2006)
323 Smith and Lynch (2006)
324 Smith and Lynch (2006) page 54
325 Wilson (1997)
326 Lynch and Smith (2006)
327 Lynch and Smith (2006) page 54
328 Lynch and Smith (2006)
329 Abbott and Ryan (1997)
331 Quong (2006)
332 Spady (1988)
333 The 8 Learning Management Questions were developed by David Lynch in 1998.
335 The learning design phases were developed by David Lynch as part of the 8 Learning Management Questions in 1998.
336 Marzano and Pickering et al. (1997)
337 For further information on Dimension 1 see pages 39–41 in Marzano and Pickering et al. (1997).
338 Marzano and Pickering et al. (1997) Pages 43-122, 113-188 and 189–259
The Design and Execution of Learning Experiences: The Learning Experience Plan and the Unit of Work

David Lynch, Tina Doe and Richard Smith

Learning outcomes
By completing this chapter you, as a developing Learning Manager, will be able to:

1. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   - Identify and utilise innovative solutions that inform the practice of Learning Manager
2. Apply the Learning Design framework
   - Utilise 8 Learning Management Questions (LMQs) to organise the development of a Learning Journey
   - Expand a Learning Management Plan (LMP) as an action plan to deliver a series of Learning Experiences
   - Utilise the concept of portal task to inform the outcomes of a learning program
3. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager
   - Learning Design
   - Dimensions of Learning
   - Learning Management

Before we begin this chapter there are a couple of things we’d like to point out. First this chapter is fairly ‘heavy going’. By this we mean the chapter covers a lot of information; much of which will be new to you. Second the chapter has been designed largely as a ‘step-by-step’ manual for designing learning experiences. On face value detailing numerous ‘steps’ may appear cumbersome given the many steps involved. The point we’d like to make is that designing effective learning experiences requires much thought; with many things to factor. In time you, as an experienced Learning Manager, will have internalised the steps as part of your professional make-up and see the value in having deep insights into the process. To help you read this chapter we suggest you take time to become familiar with the acronyms that are used throughout the chapter:

LM  
Learning Manager
An education professional who designs and delivers learning experiences so as to achieve learning outcomes in learners — the teacher construct of the 21st century.

LMQ  
Learning Management Questions (LMQs)
A series of questions that engage a Learning Manager in a process of designing learning experiences so as to produce intended learning outcomes; recorded as a Learning Management Plan (LMP).

LMP  
Learning Management Plan (LMP)
A compilation of answers to the 8LMQs used to organise key considerations for the design of learning experiences.
The Rise of the Learning Manager

**LEP**  
*Learning Experience Plan (LEP)*  
A learning experience plan details the specifics of learning strategies involved and is referenced to an LMP.

**IEP/ILP**  
*Individual Education/Learning Plan*  
A learning plan for an individual/special needs learner.

**UoW**  
*Unit of Work (UoW)*  
A series of learning experiences, over an extended period of time, which have been designed to achieve learning outcomes in learners. A Unit of work details the specifics of learning strategies involved and is referenced to an LMP.

**UOT**  
*Unit Overview Template*  
A template used to detail the specifics of a UoW.

**DoL**  
*Dimensions of Learning (DoL)*  
A series of evidence-based teaching/learning strategies that are used to constitute learning experiences. Comprises four learning dimensions often referred to as Dimension 1, 2, 3, 4, and 5.

In the previous chapter the notion of learning design was explored by introducing the concept of the 8 LMQs. These questions guide the Learning Manager to the requisite elements required for achieving learning outcomes in learners. These questions embody a series of sequential steps that draw the Learning Manager to the learner, their learning profile and a series of ‘chief’ learning considerations in a context of target learning outcomes. The product of such a process is a broad plan of action called a ‘Learning Management Plan’ (LMP). See Figure 10.2.

In this chapter we continue the examination of the learning design process by focusing to the development of specific learning experiences (or lessons) as extrapolations of the LMP. In effect we explain how to utilise the developed LMP to formulate a series of specific Learning Experience Plans. These learning experience plans essentially detail the ‘how’ of achieving the target learning outcomes. These plans differ from the LMP in that they are second order to the LMP and essentially outline a series of specific teaching and learning strategies, in a developmental sequence, that culminate the ‘essential elements’, as outlined in the LMP.

The LMP is the master plan and the Learning Experience Plan (LEP) is the LMP broken down into manageable bits for instruction.

The key point to note is that the LMP captures and organises the key elements required for achieving predefined learning outcomes, while the LEP creates a specific plan of action for the Learning Manager to follow during teaching and learning sequences. The Learning Manager utilises Dimensions of Learning (DoL) research as a bank of specific evidence-based strategies, to inform their LEP.

LEPs are particularly important to the novice Learning Manager as they act as a set of ‘training wheels’ while they develop their ‘teaching and learning capabilities’.

In this chapter we cover four specific aspects of the learning design process. First, we briefly review DoL research so as to locate and reference a series of evidence-based teaching and learning strategies that lie at the heart of LEPs.
Second, we revise the concept of a LMP by examining a ‘completed one’ for points of learning reference. In using a completed plan we demonstrate how key ‘bits of information’ are extrapolated from the LMP for planning teaching and learning sequences, using LEPs. Having completed these tasks we move to a third section where we examine the development of a Unit of Work (UoW). The UoW is used for extended teaching and learning periods and for integrating various key learning areas in a ‘trans-disciplinary’ approach. Finally we provide a series of design templates and resources. We turn first to an overview of DoL.

To effectively utilise this chapter you will need to study and then refer to Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.

THE DIMENSIONS OF LEARNING (DoL)

When the Learning Manager completes their LMP they end up with a compendium of information about their learner and the learning context. The task at LMQ5 is to develop a ‘learning journey’ — a series of sequential and related learning experiences — as the vehicle for achieving the predefined learning outcomes (LMQ2). In effect, a ‘how to’ strategy that the Learning Manager knows will work. In the 2000 epoch, much research has been compiled providing educators with insights into what actually works with respect to teaching and learning. The DoL is one such compilation.

The DoL framework is presented through five ‘dimensions of learning’ and was developed by Mid-continent Research for Education and Learning (McREL). These ‘dimensions’ are the results of a comprehensive body of education research that organises what researchers and theorists know about learning to define the learning process.

DoL is a compendium of what is known to work in teaching and learning. The DoL framework is fundamental to the novice Learning Manager as it provides a bank of strategies that align the type of knowledge to be taught to the learner’s developmental stage.

DoL is therefore used in the learning design process as an articulation of specific teaching and learning strategies. These strategies serve to define what good teaching and learning practice is and so reduce the multitude of ‘personal (devoid of research evidence) teaching pedagogies’ that exist in classrooms today. The DoL primarily aims to reduce a Learning Manager’s reliance on ‘chalk and talk’ type traditions.

‘Chalk and talk’ is a well used phrase in education and denotes a teacher’s use of ‘oral commentary’ and a ‘blackboard’ (or whiteboard) to impart knowledge to learners. In upper primary and secondary schooling, a text-book or sourcebook generally supplements this approach.

As Chapter 9 explained, DoL first makes explicit the notion that there are fundamentally two types of knowledge that learners will learn. The first is ‘declarative knowledge’, which comprises knowledge that the learner knows or understands. This includes things such as organising ideas, details and vocabulary terms and phrases. The second is ‘procedural knowledge’, which comprises knowledge whereby the learner is able to do something and includes...
processes and skills. Having an understanding of these fundamental concepts is important because the instructional strategies that the Learning Manager applies differ for each type of knowledge. You will recall LMQ2 asks you to detail your learning outcomes in terms of declarative and procedural items to facilitate this DoL requirement.

As we mentioned earlier, DoL comprises five ‘learning dimensions’ that become the chief organisers for specific teaching and learning strategies and deal with declarative and procedural knowledge. The five dimensions are:

- **Dimension 1:** Attitudes and Perceptions
- **Dimension 2:** Acquire and Integrate Knowledge
- **Dimension 3:** Extend and Refine Knowledge
- **Dimension 4:** Use Knowledge Meaningfully
- **Dimension 5:** Habits of Mind

Figure 10.1 provides a representation of the five dimensions.

**Figure 10.1** The Dimensions of Learning and their interplay: Attitudes and Perceptions (D1) and Habits of Mind (D5) are the foundation for a series of instructional/teaching strategies—Acquire and Integrate, Extend and Refine and Use Knowledge Meaningfully (D2, D3, D4)—that align with the developmental phase of the learning journey and as outlined at LMQ5.

The fundamentals of DoL are that in order for the Learning Manager to achieve learning outcomes in learners they must first establish in learners appropriate Attitudes and Perceptions (Dimension 1) and Habits of Mind (Dimension 5). In Figure 10.1 this notion is represented by Dimensions 1 and 5 appearing as the background to Dimensions 2, 3 and 4.
If the knowledge to be learnt is new to the learner, the Learning Manager applies Dimension 2 — acquire and integrate strategies. Conversely if the knowledge has been learnt previously by learners (i.e., LMQ1 findings) then the Learning Manager applies Dimension 3 — extend and refine strategies. It follows then that knowledge needs to be made meaningful to the learner and so Dimension 4 — use knowledge meaningfully — is factored within the context of the LEP, or indeed the unit of work, as a whole.

It is important to note here that the effective Learning Manager is constantly considering all 5 dimensions of learning in any particular LEP; however as a component piece of the overall unit of work, each LEP will have a particular DoL focus.

These five dimensions provide a compendium of strategies that underpin the Learning Manager’s work in achieving defined learning outcomes in LMQ2. By this we mean DoL defines the course of action in each LEP.

Having now made these introductory comments, the task is to explore the notion of developing a LEP. To detail the steps involved we refer to a completed LMP, as the commentary that follows explains.

Keep in mind the fact that LEPs are subsets of a LMP. By this we mean a LEP relies on a completed LMP for specific points of reference and focus.
THE LEARNING MANAGEMENT PLAN

Having completed Chapter 9 (on learning design) you will appreciate the time, data and thinking required when compiling a LMP. In fact one could argue the time required alone is a significant challenge for the time poor professional — and you may be right — but right only in the sense that you are novice to the process. Hopefully you will have realised that all end products require appropriate inputs and therefore time is a by-product of learning something new.

The experienced and accomplished Learning Manager, by contrast, will have internalised the 8LMQs as part of their professional ‘toolkit’ and, for example, will utilise their first plan for a cohort to inform a series of successive plans. By this we mean the experienced Learning Manager, like the experienced pilot flying a plane, will have internalised the process to the point where streamlined knowledge and skill sets come into play; where information from one plan informs the next, and so on. This will occur to the point where the Learning Manager is designing units of work (discussed in a section that follows) across a semester or year, where integrated Key Learning Areas (subjects for study) form trans-disciplinary (or multi-disciplinary or integrated) learning experiences and LEPs make way for broad daily plans as the specific DoL strategies are internalised. In effect the time spent designing learning experiences becomes commensurate (proportionate) to the task at hand.

Let’s now move to the thesis of this chapter by examining a completed LMP, as the foundations for developing a series of subsequent LEPs. Remember the LMP is the chief reference for all LEPs.

The LMP example in Figure 10.2 is focused to teaching a young child to ride a bike. The learning program is therefore informal in that the learning outcomes are not derived from a formal schooling syllabus or curriculum. We have chosen this topic because it is simple and we can assume that you as a novice Learning Manager will relate to learning to ride a bike. The process applies equally to formal learning situations. The commentary that follows provides the background and context to the developed LMP that appears as Figure 10.2:

The Focal Learning Journey: The Learning Context

Learning Manager Susie has been commissioned to teach six-year-old Harry to ride his pushbike in the context of his suburban neighbourhood. His mother Sally has commissioned Susie because she can no longer take Harry to school and so requires Harry to learn to ride his bike. LM Susie developed a Learning Management Plan and her findings appear on a following page. In compiling the LMP, LM Susie has followed the steps as outlined in Chapter 9.

Begin your learning for this chapter by reviewing the LMP that Susie has compiled. In reviewing the plan turn back as required to Chapter 9 and reflect on the information Susie has installed on her plan. Seek to identify the ‘steps’ she has NOT utilised and ask yourself why?
**Figure 10.2 LMP example — Learning to ride a push bike**

**Learning Management Plan for:** Hany  **Learning Management Plan Focus:** Learning to ride a pushbike

**LMQ1: What does my Learner already know?**
- Does not know the component parts of a bike (e.g. pedals, foot and hand brakes, handle bars, etc)
- Understands that a push bike is a form of transport and that there are certain rules that govern riding on a street
- Does not know the fundamental rules of the road as they relate to riding a bike in a suburban environment
- Has had very little exposure to push bikes and therefore no established skill in riding a bike.
- Cannot balance on the bike
- Is excited about learning to ride his bike and demonstrates habits of mind that appear to support learning (See Record E1)

**LMQ5: What will constitute the learning journey?**

<table>
<thead>
<tr>
<th>Order</th>
<th>Learning outcomes</th>
<th>Learning experiences</th>
<th>Duration</th>
<th>Time frame/ when</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D1</td>
<td>The component parts of the bike</td>
<td>2</td>
<td>15 minutes</td>
</tr>
<tr>
<td>2</td>
<td>P1</td>
<td>Using the pedals for power and braking</td>
<td>2</td>
<td>15 minutes</td>
</tr>
<tr>
<td>3</td>
<td>P1</td>
<td>Stearing and braking</td>
<td>2</td>
<td>15 minutes</td>
</tr>
<tr>
<td>4</td>
<td>P1</td>
<td>Practice Q2 and 3 more combines</td>
<td>2</td>
<td>10 x 15 minutes</td>
</tr>
<tr>
<td>5</td>
<td>P1</td>
<td>Balance, pedal power, steering and braking</td>
<td>2</td>
<td>10 x 15 minutes</td>
</tr>
<tr>
<td>6</td>
<td>D2</td>
<td>Readiness</td>
<td>2</td>
<td>2 x 30 minutes</td>
</tr>
<tr>
<td>7</td>
<td>P1</td>
<td>Practice—suburban street</td>
<td>2</td>
<td>9 x 30 minutes</td>
</tr>
</tbody>
</table>

**LMQ2: Where does my learner(s) need/want to be?**

**(Declarative Knowledge):**
- D1: Name the component pieces of push bike and articulate their function in riding a bike
- D2: Know the rules of the road that impact them riding a push bike in a suburban street

**(Procedural Knowledge):**
- P1: Use balance and pedal power to propel themselves on a pushbike

**LMQ3: How does my learner best learn?**
- Excited about learning to ride but nervous about getting on the bike
  - Build the learner’s confidence by providing opportunities for practice
- Likes being outcome and is keen to give things a go
  - Make the teaching/learning program practical and use the pushbike in discussions and lessons (See Appendix 2)

**LMQ6: Who will do what?**
- Learning Manager to oversee and facilitate key learning experiences
- Mother to facilitate ongoing practice sessions

**LMQ4: What resources do I have at my disposal?**
- A pushbike of appropriate size
- A set of removal training wheels
- A helmet and associated safety equipment
- 15 hours of instruction time
- Safe area of flat ground for practice riding sequences
- A mapped path from home to school

**LMQ7: How will I check to see my learner has achieved the defined learning outcomes?**
- Oral quiz of component bike parts and key safety considerations as starting process for each learning experience
- Observations of developmental skills

**LMQ8: How will I inform the learner and others of the learner’s progress?**
- Oral feedback to the learner
- Oral feedback to learner’s parent
- Certificate of completion using a star chart that maps developmental progress
There are four aspects of Learning Manager Susie’s LMP (Figure 10.2) that warrant mention:

1. The LMP has been completed in ‘dot point’ form. This is important because it ensures the plan is a summary of key findings and therefore can be used as a ready reference when developing individual LEPs.

2. To give body to findings Learning Manager Susie will have compiled an ‘appendix’ of information that has informed her dot point summaries. This appendix is a file of supporting documentation which can be sourced should additional information be required. You’ll note she has referenced LMQ1 and 3 to an appendix using a simple code. This is a good habit to get into as the plans grow in size and scope.

3. Learning Manager Susie has not commenced her design process by classifying the learner as ‘at standard’ or ‘requiring special consideration’. This is because the learning program is non-formal and there is one learner. If the plan was for a cohort, then the notions of ‘at standard’ and ‘special consideration’ could be used to group learners with respect to their abilities and the outcomes that have been defined. The notion of ‘at standard’ and ‘special consideration’ learners really applies to situations where developmental performance benchmarks have been developed (e.g., Year 3 Reading).

4. It is apparent through findings in LMQ1 that Harry has little knowledge of riding a bike and so Dimension 2 — acquire and integrate knowledge — becomes the chief strategy.

In moving to develop LEPs, the sequencing of each LEP has been detailed at LMQ5 on the LMP. In the case of Harry learning to ride a bike, LMQ5 is detailed as a series of seven sequential learning experiences, which are arranged in tabular form, as the following ‘cut and paste’ from Learning Manager Susie’s LMP in Table 10.1 reveals:

### LMQ5: What will constitute the learning journey?

**Table 10.1** A series of seven sequential learning sequences: what the LM plans to do!

<table>
<thead>
<tr>
<th>The order each learning sequence will appear</th>
<th>A link to the LMQ2 in the LMP</th>
<th>Title of each learning experience</th>
<th>What DoL strategy applies</th>
<th>Time frame/when</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D1</td>
<td>The component parts of the bike</td>
<td># D2</td>
<td>15 minutes</td>
</tr>
<tr>
<td>2</td>
<td>P1</td>
<td>Using the pedals for power and braking</td>
<td>D2</td>
<td>15 minutes</td>
</tr>
<tr>
<td>3</td>
<td>P1</td>
<td>Steering and braking</td>
<td>D2</td>
<td>15 minutes</td>
</tr>
<tr>
<td>4</td>
<td>P1</td>
<td>Practice (2 and 3) — safe confines</td>
<td>D2</td>
<td>16 x 15 minutes</td>
</tr>
<tr>
<td>5</td>
<td>P1</td>
<td>Balance, pedal power, steering and braking</td>
<td>D2</td>
<td>16 x 15 minutes</td>
</tr>
<tr>
<td>6</td>
<td>D2</td>
<td>Road rules</td>
<td>D2</td>
<td>2 x 30 minutes</td>
</tr>
<tr>
<td>7</td>
<td>P1</td>
<td>Practice — suburban street</td>
<td>D2</td>
<td>8 x 30 minutes</td>
</tr>
</tbody>
</table>

# D2= Dimension 2 of the Dimensions of Learning Framework.
LMQ5 is organised as a **summary of series of sequential learning experiences**. As a later section will reveal, a learning journey that has a large series of learning experiences — over an extended or ongoing period of time — is treated as a UoW and so organised using a more elaborate tabular format: a *Unit Overview Template* (see the section that follows). The Learning Manager could also detail LMQ5 as a single LEP when the strategy involves just one learning experience.

LMQ5, as represented in Table 10.1, organises each learning experience according to it’s:
- sequence;
- specific outcome focus (as a link to the stated outcomes in LMQ2, usually using some code for word efficiency);
- title (to indicate what the experience will be about);
- the DoL that will be used (i.e., Dimensions 2, 3, 4); and the
- time required.

These five attributes are the chief elements in the LEP.

You should note that LMQ 5 first requires an analysis of findings in LMQs 1 through 4 and is then organised as a summary of LEPs.

Before moving on, let’s review how Learning Manager Susie would have arrived at compiling LMQ5:

### Steps to Follow in Compiling LMQ5

**Step 1**
Review data compiled as part of LMQ1, 3 and 4. In reviewing this data you are in effect developing a broad perspective of:
- What your learner knows or doesn’t know
- How your learner best learns
- The ‘things’ you have available to implement the learning journey

The result of completing this step is a detailed understanding of your learner and the scope you have for achieving defined learning outcomes.

**Step 2**
Use this template at LMQ5 to record your broad (only the title of each) sequential strategies.

<table>
<thead>
<tr>
<th>Order/sequence</th>
<th>Learning outcomes</th>
<th>Learning Experiences</th>
<th>Dimension</th>
<th>Time frame/when</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Step 3
Review LMQ2 to identify what type of knowledge is to be learnt? **Procedural or declarative.**

Step 4
Reflecting on LMQ3 data ascertain if your learner has the required Attitudes and Perceptions and HoM to support learning focused through LMQ2. If not your first learning strategy is to develop the required Attitudes and Perceptions and HoM in your learners.

Step 5
Record strategies on LMQ5 as a series of defined Attitudes and Perceptions and/or HoM activities. Consult the appropriate source materials through research.

Step 6
Review the learning outcome statements in LMQ2. You now need to make judgements about the status of these outcomes with respect to your learner.

Step 7
Choose the appropriate Dimension. This choice provides you with a bank of appropriate Dimension of Learning teaching and learning strategies to use so as to achieve your focal LMQ2 learning outcomes.

Step 8
Think about the overall learning journey you are to engage in. Use the notion of LMQ2 as your end point. Consider the time you have available (LMQ4) and begin to conceptualise a course of action. By this we mean begin to plan what each sequential learning segments or Learning Experience will comprise; knowing you aim to achieve the statements in LMQ2 at the learning journey’s end.

Step 9
Break your learning journey into manageable ‘bits’, which are referred to as ‘Learning Experiences’ or ‘Lessons’ and give each a title to indicate what each will comprise. This will make the actual development of each experience easier.

Step 10
Record each sequential learning experience using the template supplied for LMQ5.

The task now is to develop a series of LEPs. Figure 10.2 provides a sample LEP template.

In learning to develop a LEP there are 13 component pieces on a LEP that need to be developed. These pieces are identified on Figure 10.2 as ‘a’ through ‘m’. We use these ‘alphabet points’ to illustrate the commentary that follows.
The important points to note here is that a successful LEP embodies the key elements from the LMP and becomes the ‘how to’ for teaching and learning. The format of the LEP largely reflects the learning experience under consideration, your experience in delivering such experiences and the bulk of information at hand through the LMP. In each case, the template provided in this section should be modified by the Learning Manager to reflect one’s Learning Management needs.

**Remember:** the task is to formulate a series of appropriate learning experiences; not just the completion of the proforma. The proforma organises you to consider the key instruction elements! Modify its format to suit information you need to install!

---

**Figure 10.2** A sample LEP  (This should be developed using A3 sized paper; as a minimum)

<table>
<thead>
<tr>
<th>Learning Experience Plan (LEP)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sequence:</strong> (a)</td>
<td></td>
</tr>
<tr>
<td><strong>Title:</strong> (b)</td>
<td></td>
</tr>
<tr>
<td><strong>Date:</strong> (c)</td>
<td><strong>Time frame:</strong> (mins) <strong>Time of day:</strong></td>
</tr>
<tr>
<td><strong>Key Learning Area:</strong> (d)</td>
<td></td>
</tr>
<tr>
<td>☐ ‘At standard’ Learner Group (e)</td>
<td>☐ Special Consideration Group (e)</td>
</tr>
</tbody>
</table>

What specific outcomes does this LEP seek to focus on? (refer to LMQ5 in your LM Plan)

*The learner will be able to:*

-  
- (f)

LMQ3: What HoMs and Attitudes and Perceptions does this LEP require and how are they to be factored? (g)

**The DoL Strategy**

<table>
<thead>
<tr>
<th>Knowledge to be learnt</th>
<th>DoL Strategy</th>
<th>What I will do?</th>
<th>Resources LMQ4</th>
</tr>
</thead>
<tbody>
<tr>
<td>(h)</td>
<td>(i)</td>
<td>(j)</td>
<td>(k)</td>
</tr>
</tbody>
</table>

LMQ6: Who will do what to assist me in delivering the LEP? (l)

LMQ7/8: How will I assess the outcomes of this LEP and how will I report progress? (m)

**EVALUATION:** How did it all go? What would I do differently? What am I celebrating? (n)

---

Remember to continually refer to the Learning Management Plan for details / information as you complete each section on the LEP.

We also suggest that the novice LM develop one LEP at a time and use experiences and insights gained from delivering such to inform the next LEP.
The Rise of the Learning Manager

The Steps to Follow

Step 1
Learning experiences are designed to be ‘staged’ in a particular sequence. Each LEP therefore requires a ‘sequence number’ to denote its sequence in the overall learning journey. At ‘a’ insert the sequence number that has been accorded it at LMQ5. This sequence number is particularly useful when having to organise and arrange many learning experiences.

Step 2
Insert the title that has been accorded the learning experience in LMQ5 for this LEP at ‘b’ and the date that you plan to deliver the learning experience, the time required for the experience and the time of its staging at ‘c’.

Step 3
At point ‘d’ you indicate the key Learning Area that relates to the learning journey/ LEP, if a formal learning journey.

Step 4
In most classroom contexts a separate LEP will be developed for ‘at standard’ and ‘special consideration’ learning cohorts. At ‘e’ you indicate what learner type the LEP has been designed for.

Step 5
At ‘f’ insert the specific learning outcome statements that have been planned for this LEP. (These are coded in LMQ5 on the LMP as ‘Learning Outcomes’- see Figure 10.2). These specific statements are designed to focus your attention to what you aim to achieve with learners in this LEP. This becomes particularly important as you complete ‘h’ through ‘m’. Items at ‘f’ should be direct cut and pastes from LMQ2 and inserted as applicable to each LEP.

Step 6
DoL research informs us that all learning experiences require learners to have established appropriate Attitudes and Perceptions and the required Habits of Mind for learning. Give thought to how you’ll establish/ maintain these D1 and D5 attributes. At ‘g’ the Learning Manager reflects on what initial or ongoing strategies that will apply to establish and maintain appropriate HoMs and Attitudes and Perceptions.
Attitudes and Perceptions and Habits of Mind are usually treated as component parts of every LEP. In some specific circumstances it may be beneficial to devote a learning experience or a series of them to Attitudes and Perceptions and HoM; in effect a foundation strategy for your work with your learner cohort. This is common when starting new learning journeys or when first working with a learning cohort.

Step 7
The task is to now break each outcome statement (from point ‘f’) into its declarative and procedural knowledge components and then record these at point ‘h’. This makes explicit what you are to actually teach and provides a basis for the strategies you formulate at Step 8.

Table 10.3 is an example of how a learning outcome can be categorised according to its ‘knowledge type’ and then broken into its component knowledge pieces as the content and information to be taught. The same can be done for procedural knowledge for the specific ‘processes and skills’ to be taught (see page 90. This section—marked # on Table 10.3--- would change accordingly). By this we mean you think about and then record the specific ‘things’ (knowledge) you need to teach to inform such learning outcomes. This template (Table 10.3) should be developed as the information required for ‘h’. Give thought to how you’ll construct your LEP so it continues to be an easy to read, ready-reference document during learning experience delivery.

Table 10.3 Declarative knowledge template

<table>
<thead>
<tr>
<th>Learning outcome (from ‘f’)</th>
<th>Knowledge type</th>
<th>(h) #Knowledge components /pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1: Name the component pieces of a pushbike and articulate their function in riding a bike</td>
<td>This Learning outcome is made up of “declarative” knowledge</td>
<td>Components of bike</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Handle bars, steering column,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hand brakes, Front/ rear wheels,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wheel, tyres, spokes, brake</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mechanism/ pads, seats, chain,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pedals, gears</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Helmet, shoes</td>
</tr>
</tbody>
</table>

Step 8
Using (Marzano et al) DoL Teachers Manual and the Dimension of Learning Strategy identified at LMQ5 (i.e., D2, D3, D4 or D1, D5) for this LEP record the specific DoL strategy you’ll use at ‘i’ and your specific DoL related actions at ‘j’.

Points ‘i’ and ‘j’ on the LEP require direct reference to DoL strategies. So at Step 8 the Learning Manager will refer to the appropriate chapter of Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
The DoL strategy at ‘i’ will vary according to the identified Dimension of Learning. The DoL strategies are located in arzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory on the following pages:
- DIM2: pages 43-111
- DIM3: pages 113-187
- DIM4: pages 189–258

NOTE: Helping students acquire and integrate new knowledge is an important aspect of learning.

When students are learning new information (declarative knowledge), they must be guided in relating the new knowledge to what they already know, organizing that information, and then making it part of their long-term memory. When students are acquiring new skills and processes (procedural knowledge), they must learn a model (or set of steps), then shape the skill or process to make it efficient and effective for them and, finally, internalize or practice the skill or process so they can perform it easily.

For example
This table illustrates how item ‘h’ is utilised on the LEP to inform (for example) the D2 DoL strategy (‘i’) that has been selected and what you will do to teach (‘j’): the component parts of a push-bike. This strategy relates to declarative knowledge in an Acquiring and Integrating of knowledge circumstance (Dimension 2).
Step 9
With reference to the materials/resources identified as part of LMQ4 allocate resources according to the needs of each learning experience segment at point ‘k’.

Using an extract from Step 8, this table illustrates how ‘k’ is used to record the resources that align with a specific strategy.

<table>
<thead>
<tr>
<th>Knowledge to be Learnt (h)</th>
<th>DoL Strategy (i)</th>
<th>What I will do? (j)</th>
<th>Resources LMQ4 (k)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component parts of a push bike: Etc, etc</td>
<td>1. Construct Meaning</td>
<td>Draw Harry’s attention to the pushbike and ask him to name the parts of the bike as I point to them. 1. Eliminate those parts that he knows. 2. Ask Harry to tell me the role of each component part that he knows. 3. Eliminate those parts that he knows. 4. Name and detail the remaining (unknown) component parts 5. etc, etc, etc</td>
<td>• 1 x push bike • A series of labels naming each component part</td>
</tr>
</tbody>
</table>

Step 10
Review LMQ6 for available support personnel and relate these people to the task at hand by allocating roles that mesh with the strategies detailed in ‘j’. This step is particularly important when designing LEPs that cater for ‘at standard’ and ‘special consideration’ learner groups. Summarise what these people will do at ‘l’.

This may include:
• Para-Learning Managers, teacher’s aides
• Parents, care-gives, peers
• Other Learning Managers
• Computer-based learning programs

Step 11
Review the outcomes that are applicable for the LEP at ‘f’ and conceptualise/develop/choose strategies, as outlined in LMQ7, to assess the extent to which the specific defined learning outcomes have been met for this LEP. Begin by reflecting on the outcomes you have set at ‘f’ and then ask yourself:
• What will I ‘see’ if the learner has achieved the focal learning outcomes?
• How will I evidence what I ‘see’?

In most cases Step 11 requires you to create instruments and/or tasks that enable you to verify that your learner has met the outcomes. The important notion in this step is to collect evidence of attainment. The bank of such strategies will have been outlined in LMQ7.
Step 12
Review LMQ 8 for the bank of reporting strategies you plan. Think about how you’ll let the learner and key others know specifically about progress in this LEP. A good starting point is the notion of oral feedback. At point ‘m’ summarise what you’ll do to report to your learner/ other stakeholders/ inform the next LEP. Consider using the template, for the example, that follows to record information at ‘m’.

Reporting during a LEP has the dual role of providing developmental feedback to the learner as well as stakeholders (such as assistants and/or parents) involved in the learning journey.

### e.g.
An example of how to conceptualise the alignment of defined learning outcomes to an assessment task and a corresponding reporting task or activity. These tasks/activities, while not necessarily in tabular form, are transposed to point ‘m’ on the LEP.

<table>
<thead>
<tr>
<th>Defined learning outcomes</th>
<th>Sample assessment task</th>
<th>Sample reporting tasks/activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>(from ‘f’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The learner will be able to:</td>
<td>To assess this task the learner will: Apply a series of labels, with the names of the components of a pushbike, to the appropriate parts of the bike.</td>
<td>To report the progress to the learner I will: Provide oral feedback on progress and a certificate that illustrates the component parts that are known.</td>
</tr>
<tr>
<td>D1: Name the component pieces of push bike and articulate their function in riding a bike</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 13
A final step in the LEP process is the completion of an evaluation of the experience at ‘n’. This task is generally completed by the Learning Manager after the experience has been conducted and embodies a ‘moment’ of personal critical reflection.

In reflecting, ask yourself:
- How did the experience go? Did I achieve what I planned?
- What worked? What didn’t? What would I do differently?
- How did the learner react to the experience?
- What needs to be carried over or factored for the next LEP?

Having now completed a Learning Experience Plan, the task is to execute (begin teaching and learning strategies) the experience In executing the learning experience the Learning Manager follows the explicit steps in the LEP and which are detailed at point ‘j’.

Figure 10.2 provides a template for how a LEP should be constructed. The actual design of your template will need to reflect the information (volume of) you need to record. We strongly suggest you complete LEPs on A3 sheets of paper so all tabulated information is succinctly presented for easy ready-reference.
A UNIT OF WORK (UoW)

In the previous section we explored a ‘table’ in LMQ5, which outlined a Learning Journey comprising a small number of planned learning experiences. These learning experiences typify ‘teaching tasks’ assigned to Student Learning Managers when asked to ‘teach a KLA’ over a short instruction period of say a week, for example. In this section we explore the concept of a ‘Unit of Work’ (UoW), which is the principal design template used by experienced Learning Managers who work over extended teaching and learning periods.

A ‘Unit of Work’ is a term used exclusively in formal learning environments (such as schools) to describe teaching and learning plans that are developed for the ‘learning requirements’ of a Key Learning Area (KLA: such as Year 6 English or Mathematics), or in trans-disciplinary approaches (such as a combined Year 8/9 English, Arts and Health program) over an extended period of time: usually a school term. Developing a UoW is often referred to as unit planning or unit programming. Appendix 1 provides an example of what a completed UoW looks like.

Consider this:
A Learning Manager in a Year 3 class, for example, is likely to deliver upwards of 5 90-minute learning experiences in Mathematics per week over a ten week period. This equates to 50 learning experiences in Mathematics alone, without considering; English, SOSE, Science, etc. What’s needed is a streamlined way of developing these experiences, with a capacity to integrate various KLAs, without losing any of the rigour required when design learning experiences. What’s needed is a streamlined way of developing these experiences, with a capacity to integrate various KLAs, without loosing any of the rigour required when design learning experiences.

In short, the UoW is a device used by experience Learning Managers to organise the pragmatics of full time classroom teaching across a number of KLAs over an extended period of time. The actual design template for a UoW varies from school to school and from discipline area to discipline area. The key point is that the fundamental process and the objectives of a UoW are the same. It is often the case that a novice Learning Manager will still have to develop a series of individual and prescriptive LEPs to support their professional development, as part of the unit planning process, in their formative years. You aim, when developing a UoW, to organise/ conceptualise/ make explicit all the key instruction ingredients (from the LMP) in a form that you can easily follow when delivering learning experiences.

Remember:
The task is to formulate a series of appropriate learning experiences through the development of a UoW; not just the completion of the proforma. The proforma organises you to consider the key instruction elements and is tied tightly to a Learning Management Plan!

The mechanics of a UoW

A UoW or unit plan brings together the profiling (LMQs 1, 2 and 3), strategising (LMQ 4 and 6) and ascertainment phases (LMQ7 and 8) of a LMP into one succinct ‘plan of action’.

LMQ5, in a UoW circumstance, is presented on the LMP as a succinct statement that introduces the specifics of the UoW. In all UoW cases LMQ5 is elaborated through an attached Unit Overview Template (UOT).
The Rise of the Learning Manager

The UoW is different to developing a series of LEPs, as discussed in a previous section, in that the actual synthesis of a LMP and the development of learning experiences are conducted using the Unit Overview Template (UOT). By this we mean that the UOT becomes the specific learning experience design instrument and by using it, a large number of sequential learning experiences are formulated and detailed for instructional reference. The UOT is then used to guide the Learning Manager in the Unit’s execution. The UOT is still second order to a LMP, but it seeks to accommodate the quantity of required learning experiences through one succinct design template. Appendix 1 provides an exemplar of a completed UOT.

The commentary that follows outlines the steps involved in developing a UoW using a UO Template. We use a developed UoW entitled May the Force be with You as an exemplar to explain and highlight the steps involved. This exemplar is a trans-disciplinary UoW (see Chapter 7 page 58) — covering the combined Key Learning Areas of; Science, English, SOSE and The Arts through a specific focal theme — for a Middle Years learning cohort. The process can be used for ‘stand-alone’ KLAs as well. Before beginning this commentary we first provide some background information and a brief revision of key design underpinnings.

Take time to peruse the completed UOT that appears as Appendix 1 at the end of this book for points of reference.

With all UoWs, the Learning Manager begins by completing a LMP. We have developed such a LMP; which appears as Figure 10.3 This completed LMP is used to reference the developmental steps that we outline in the section that follows. Such a plan would be supported by a portfolio of specific evidence. We have not included these elements for practicality reasons.

The exemplar UoW — May the Force be with You — comprises primarily new knowledge for our learner cohort, but by virtue of the UoW being a learning journey, learners will extend and refine this knowledge and then use it meaningfully and so cover Dimensions 2, 3 and 4 of the DoL framework. This means the delivery strategies will be drawn from:

- **Dimension 2:** Acquire and integrate knowledge
- **Dimensions 3:** Extend and refine knowledge
- **Dimension 4:** Use knowledge meaningfully

For further information about DoL strategies, refer to:

- **DIM2:** see pages 43-111 in Marzano, R. J., & Pickering, D. J. et al. (1997). *Dimensions of learning teacher's manual* (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
- **DIM3:** see pages 113-187 in Marzano, R. J., & Pickering, D. J. et al. (1997). *Dimensions of learning teacher's manual* (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
- **DIM2:** see pages 189-258 in Marzano, R. J., & Pickering, D. J. et al. (1997). *Dimensions of learning teacher's manual* (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
Helping students acquire and integrate new knowledge is an important aspect of learning. When students are learning new information (declarative knowledge), they must be guided in relating the new knowledge to what they already know, organizing that information, and then making it part of their long-term memory. When students are acquiring new skills and processes (procedural knowledge), they must learn a model (or set of steps), then shape the skill or process to make it efficient and effective for them and, finally, internalize or practice the skill or process so they can perform it easily.

**Figure 10.3 An example of the Learning Management Plan that informs our Unit of Work**

**Learning Management Plan for:** Year 9, SOSE, English, The Arts, Science

**Title of Unit of Work:** “May the Force be with You”

<table>
<thead>
<tr>
<th>LMQ1: What do my learners already know?</th>
<th>LMQ2: Where do my learners need/want to be?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(refer to student profiles for specific details)</td>
<td>My learner will be able to demonstrate an understanding of energy changes, transfer and transformation. Declarative Knowledge: my learner will know</td>
</tr>
<tr>
<td>• Students can recall basic definitions of energy, force and motion, Industrial Era and Digital Age and can name ‘interactions’ that occur between living and non-living parts of the environment (see appendix for test results and previous LMP)</td>
<td>1. what energy is and does and how it is used to affect change and to achieve effect</td>
</tr>
<tr>
<td>• 4 students have specific literacy problems (Shane; Sharnie; Wayne; Ronald) which will require special programming consideration</td>
<td>2. The impact of the written word: a study of both visual and musical literacy</td>
</tr>
<tr>
<td>• All students have had experience with exposition genre (App1)</td>
<td>3. The history of societal change from IR to Digital Age</td>
</tr>
<tr>
<td>• Previous LMP learning outcomes have been achieved (App2)</td>
<td>4. How society responds to and explores energy and force through art and vice versa</td>
</tr>
</tbody>
</table>

**Procedural Knowledge:** my learning will be able to

1. Demonstrate their knowledge and understanding of energy and change to an audience
2. Write in exposition genre about a field of interest central to the unit focus
3. Analyse societal change in a context of ecological sustainability/impact on lifestyle
4. Concept design and produce a TV news report that presents ideas to address audience needs and wants

Syllabus references: SCI4.1, ENG2, ART5.3, SOS4.7

<table>
<thead>
<tr>
<th>LMQ3: How do my learners best learn?</th>
<th>LMQ4: What resources do I have at my disposal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension of Learning Considerations</td>
<td>• Science lab: ‘energy class pack’ and various disposable resources</td>
</tr>
<tr>
<td>• Specific Habits of Mind and Attitudes and Perceptions (App 3)</td>
<td>• Student workbooks</td>
</tr>
<tr>
<td>• Learner Profile</td>
<td>• Drama lab</td>
</tr>
<tr>
<td>• Refer student learning assessment (App 4)</td>
<td>• Local television re ‘producer in residence’ and studio excursion.</td>
</tr>
<tr>
<td>• Most students indicate a preference for hands on activities and discovery learning tasks</td>
<td>• Set texts to be nominated in each KLA.</td>
</tr>
<tr>
<td>Research Best Practice</td>
<td>• Websites to be sourced at point of delivery for currency and availability.</td>
</tr>
<tr>
<td>• Refer: “Teaching Science, Teaching Well” (Library code WH.124)</td>
<td>• IT, literacy and numeracy and cultural perspective are embedded features.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMQ5: What will constitute the learning journey?</th>
<th>LMQ6: Who will do what?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overview</strong></td>
<td>This unit requires a team of middle school teachers to deliver in collaboration.</td>
</tr>
<tr>
<td>Each KLA ‘specialist’ (x4) will provide content and pedagogy input as required</td>
<td>Each KLA ‘specialist’ (x4) will provide content and pedagogy input as required</td>
</tr>
<tr>
<td>Learning Manager to oversee student groups (x6 =24 total) and delivery core unit underpinnings</td>
<td>Learning Manager to oversee student groups (x6 =24 total) and delivery core unit underpinnings</td>
</tr>
<tr>
<td>Teacher aide to assist with each group and various activities as required</td>
<td>Teacher aide to assist with each group and various activities as required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMQ7: How will I check to see that my learners have achieved the defined learning outcomes?</th>
<th>LMQ8: How will I inform learners and others of the learner’s progress?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key assessment task or culminating task</strong></td>
<td>• Feedback sheet (teacher and peers) on performances</td>
</tr>
<tr>
<td><strong>Embedded outcomes for all KLAS</strong></td>
<td>• Student goals sheet and personal reflection on outcomes</td>
</tr>
<tr>
<td><strong>Portal Task</strong></td>
<td>• Weekly personal progress forum</td>
</tr>
<tr>
<td><strong>Summative tools and assessment instruments</strong></td>
<td>• Group TV news report: peer evaluated and these ‘draft’ marks will act as feedback for further development.</td>
</tr>
<tr>
<td>Group TV news report: peer evaluated and these ‘draft’ marks will act as feedback for further development.</td>
<td>Dress rehearsals and practice shoots designed as opportunities for informal feedback and formative assessment.</td>
</tr>
<tr>
<td>Group (5/6) Television News Report</td>
<td><strong>Formative assessment to scaffold task</strong></td>
</tr>
<tr>
<td>“Ideate a story angle and compose a script, Write a production plan and evaluate your first take”</td>
<td>KLA based individual tasks:</td>
</tr>
<tr>
<td>See Portal Task Descriptor (App 5)</td>
<td>• Science demonstration</td>
</tr>
<tr>
<td></td>
<td>• English persuasive exposition</td>
</tr>
<tr>
<td></td>
<td>• SOSE soapbox</td>
</tr>
<tr>
<td></td>
<td>• ‘The ARTS’ freeze-frame series (See App 6)</td>
</tr>
</tbody>
</table>

Learning Experiences and Units of Work
Figure 10.3 is the LMP that informs our development of a UoW entitled *May the Force be with You* and the themes of energy, force and motion that lie within it. We have also included a blank UoW template (See Figure 10.4) as a reference to the ‘developmental steps’ that we then outline in the section that follows.

**Figure 10.4 Unit Overview Template:** A reference for the steps that are outlined and which follow.

<table>
<thead>
<tr>
<th>Unit Overview Template</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year level and Unit title: (a)</td>
</tr>
<tr>
<td>Key focal question: (b)</td>
</tr>
<tr>
<td>Rationale (May draw on LMQs 1, 2 and 3, DIMs 1, 4 and 5): (c)</td>
</tr>
<tr>
<td>Host KLAs: (d)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Syllabus Outcomes (LMQ1 and LMQ2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIOR LEARNING (LMQ1)</td>
</tr>
<tr>
<td>The learner will be able to:</td>
</tr>
<tr>
<td>(e)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOCUS QUESTIONS (LMQ1 and LMQ2, DIM 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(f)</td>
</tr>
</tbody>
</table>
## Knowledge Focus (LMQ2, DIM 2)

<table>
<thead>
<tr>
<th>Declarative Knowledge</th>
<th>Procedural Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>(g)</td>
<td></td>
</tr>
</tbody>
</table>

## Vocabulary

<table>
<thead>
<tr>
<th>Concept or Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>(h)</td>
</tr>
</tbody>
</table>

## Learning Journey: Learning Experience Sequence (LMQ5 in particular DIM 2)

### Summary of the Learning Journey

<table>
<thead>
<tr>
<th>LEP sequence no.</th>
<th>Lesson outcomes focus</th>
<th>Main DoL dim focus</th>
<th>Sequential DoL strategies</th>
<th>Main resources</th>
<th>Who will do what? (LMQ6)</th>
<th>Check for learning/assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>

## Product and Assessment (LMQ7 and LMQ8, DIM4)

### Key assessment task or culminating task

- (j)

### Formative assessment to scaffold task

### Other assessment tools & instruments
To assist your development of a Unit Overview Template (UOT), we will discuss each section of Figure 10.4 using a letter coding system that has been placed on it as ‘a’ through ‘l’. The completed UoW that we showcase, (entitled *May the force be with you*), appears in Appendix 1.

**The Steps to Follow**

**BEGIN** by completing a LMP. In this case Figure 10.3 fulfils this requirement.

**Step 1**

Use a UOT to record, and through its process, to synthesis information obtained using the steps that follow. Use Figure 10.4 as a guide when designing / planning the setting out of your UoT.

Keep your LMP handy as information from it will be used to inform all sections of the UOT. A UOT should be a series of A3 sheets of paper so as to fit all the tables and information that such requires. Some LMs prefer to make their UOT a project size document.

**Step 2**

LMQ5 on your LMP will comprise a succinct statement that describes what the unit is about. Review this statement for reference before you begin the UOT process.
LMQ5: What will constitute the learning journey?

Overview:
This unit explores the concept that everything is powered by force. Students will explore the role force, motion and energy play in our lives (both in science and nature). 4 KLAS are explicitly dedicated to this trans-disciplinary unit of work in order to build deep knowledge of how change is effected, intentionally and incidentally. In groups of 5/6 students will create and film a Television News Report (Portal Task) that demonstrates humans can influence and change nature. The unit will operate over a ten week period = 250 hours.

Reference:
See Unit Overview in Appendix 1 at the end of this book.

Step 3
At point ‘a’ install the year level (assigned class group) and the unit title.

Step 4
At point ‘b’, develop a key focal question that captures the significant knowledge that will be developed through the unit. You will be asked to expand this question further at point ‘f’.

Is everything in nature and society powered by force?

Step 5
Point ‘c’ asks the Learning Manager to detail a rationale. The rationale explains why the unit is relevant for the particular group of learners. It should include details about; how the Unit builds on prior units and learnings (LMQ1); what the broad goals are (LMQ2) and the considerations you have factored for learners (LMQ3). Fundamentally you explain the foundations of developing such a UoW.

This unit culminates two previous units entitled Energy, Force and Motion and The Industrial Era and Digital Age. The unit therefore explores these learnings in greater detail and culminates a series of ‘real-life’ meaningful tasks/assignments. This approach responds to a student survey that indicates students prefer to learn through hands on/discovery type experiences. The trans-discipline nature of the unit enables students to draw upon various knowledge and skill sets as presented in other KLAS studied. The unit has procedural and declarative knowledge as its foundations components and builds on student learning needs.

Step 6
At point ‘d’ signal the Key Learning Areas (KLA) that will be associated with this unit.

<table>
<thead>
<tr>
<th>e.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>This units incorporates the following KLAs:</td>
</tr>
<tr>
<td>- Science</td>
</tr>
<tr>
<td>- English</td>
</tr>
<tr>
<td>- SOSE</td>
</tr>
<tr>
<td>- The Arts</td>
</tr>
</tbody>
</table>

Trans-disciplinary units are those that incorporate more than one Key Learning Area and are generally focused through an organising theme.

Learning and learning outcomes are rarely aligned to one discreet body of content knowledge and so trans-disciplinary units enable the Learning Manager to incorporate learnings from various KLAs. In effect trans-discipline units mimics how people utilise knowledge in the ‘real world’ of work and play: knowledge is used interrelated.

**Step 7**

Point ‘e’ refers specifically to the identification and recording of specific syllabus outcomes for points of ‘systemic’ reference and correlation (LMQ2). This section ensures your formal learning program aligns with the expectations of various regulatory agencies. You will have completed this when completing LMQ2 on the LMP.

Point ‘e’ is completed in a context of detailing what you aim to achieve as well as what previous outcomes have been addressed (LMQ1- previous units of work) and correspondingly where you are to head into the future. The Learning Manager is encouraged to complete all three sections to demonstrate seamless and progressive learning programs.

<table>
<thead>
<tr>
<th>!</th>
</tr>
</thead>
<tbody>
<tr>
<td>These formal outcome statements should capture the overall intent of the Learning Journey and embody the specific learning outcomes that have been detailed in LMQ2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>e.g.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PRIOR LEARNING (from LMQ1)</th>
<th>FOCAL OUTCOMES (LMQ2)</th>
<th>FUTURE LEARNING (The next LMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will be able to:</td>
<td>Demonstrate an understanding of energy changes, transfer &amp; transformation</td>
<td>Create different energy forces and utilise them in situations that require power</td>
</tr>
<tr>
<td>Recall basic definitions of energy, force and motion and name ‘interactions’ that occur between living &amp; non-living parts of the environment</td>
<td>(See LMQ2 for the specific learning outcomes that frame this unit)</td>
<td></td>
</tr>
</tbody>
</table>
Remember: In any learning cohort some students will achieve the future learning outcomes by virtue of their capabilities and or interest in a particular unit of work. Allow for and plan for activities that allow and encourage students who are able to achieve in the future learning column as well as intentionally designing strategies that allow all learners to achieve in the intended outcomes column.

Step 8
At point ‘f’ a series of focal questions is developed as an extension of point ‘b’ (focal question). These are the questions that expand the unit’s learning outcomes so the Learning Manager can identify the ‘knowledge’ that makes up the unit at points ‘g’ and ‘h’ and also focus assessment strategies in Step 10, Page 134.

1. SCIENCE
   - What is the nature of energy and how do we use it?
2. ENG
   - How are we affected by the force of the written word?
3. SOSE
   - Can the collective power of people influence political agenda?
4. The Arts
   - Do we respond to and explore energy and force through art?

These focal questions cause the Learning Manager to reflect on what they specifically aim to achieve and to consider what’s needed for a successful learning journey. You should use open-ended questions — e.g., why, how, what — when completing this step. These questions also ensure no KLA is forgotten and gives direction to Step 10: assessment.

Step 9
At point ‘g’ revisit the declarative and procedural knowledge focus of the unit by referring to LMQ2 (in the LMP). In completing this step you aim to synthesis LMQ2 by detailing the component knowledge pieces of each outcome statement. By this we mean each outcome statement will have specific knowledge that informs it. At this point you aim to make the declarative and procedural knowledge of each outcome explicit and then expand these elements to identify the underpinning (essential) vocabulary and concepts that inform them (refer to Step 7, Page 121, in the section on developing LEPs).

The specific knowledge (procedural and declarative) should be derived from LMQ2 and be informed by the focal questions (f) for the unit. You aim to create a tight link between these elements at points ‘g’ and ‘h’ and then the assessment tasks you plan at point ‘j’ and ‘i7. Learning journeys comprise vocabulary and concepts that underpin the knowledge to be taught — vocabulary which will be taught and defined and concepts which will be explored. Learners should maintain some record of the vocabulary, concepts and respective definitions they learn throughout the unit. Periodically these notes should be revisited and refined and learners should be encouraged to review and update their annotations through feedback; thus extending and refining their knowledge as they use it in increasingly meaningful context.
Declarative Knowledge
(What do I want my learners to know?)

| What energy is and does and how it is used to affect change and to achieve effect |
| The impact of the written word: a study of both visual & musical literacy |
| The history of societal change from the Industrial Revolution → Digital Age |
| How society responds to and explores energy and force through art and vice versa |

Procedural Knowledge
(What do I want my learners to be able to do?)

| Demonstrate their knowledge and understanding of energy and change to an audience |
| Write in exposition genre about a field of interest central to the unit focus |
| Analyse societal change in a context of ecological sustainability/impact on lifestyle |
| Concept design and produce a television news report that presents ideas to address audience needs and wants |

VOCABULARY

| Force |
| Invention |
| Leverage |
| Energy |
| Motion |
| Reaction |
| Symbolism |
| Exposition |
| Literacy |
| Persuasion |
| Rights |
| Power |
| Government |
| Politics |
| Democracy |

CONCEPTS

| Cause–effect patterns → Episode patterns |
| Societal change |
| The power of persuasion |
| Concept design and production |
| Democratic election political structure |

From this point on the learning manager begins to detail the learning journey. The task is to transform the information you have synthesised, developed and recorded on the UOT thus far into ‘a set of specific teaching and learning actions’. By this we mean an *informed and strategic plan* of action for you as a Learning Manager.

A learning journey is a series of informed and strategic learning experiences, that when applied in a given sequence, generate learning outcomes in learners.

**Step 10**

At point ‘i’ the Learning Manager draws on information they have distilled/ synthesised in sections ‘a’ through ‘h’ to create a series of learning experiences. The table at point ‘i’ requires the Learning Manager to outline each sequential learning experience by detailing seven essential elements for each. These elements are represented as ‘i1’ through ‘i7’. We suggest section ‘i’ be developed on a separate A3 sheet of paper given its size and importance.
This table will become quite large; especially if the unit covers a semester or more.

Be sure to develop this table as a stand-alone document (A3 size) that can be used as a ready-reference during actual instruction. Be sure also to make this table a work in progress. By this we mean ensure you have capacity to change the course of action as contingent issues, professional reflection and assessment feedback requires.

In completing Step 10 the Learning Manager asks themselves the following questions and then installs their ‘answers’ or findings on the table at points ‘i1’ through ‘i7’.

At points i1 and i2: the number of lessons, what each lessons entails and in what order.
1. Decide: what the learner must know first, second and so on? See example page 136.
2. At ‘i1’ you record a ‘lesson’ number (ie Lesson 1), illustrating the order in which lessons will be delivered, and so create a link to the ‘unit timetable’ at point ‘k’
3. At ‘i2’ you record the specifics focus of each lesson (recorded as ‘i1’). To complete this section you identify the specific outcome statements (LMQ2) that focus each lesson. You then expand these by recording below it the knowledge that underpins it (‘g’ and ‘h’). This information focuses ‘i3’ through ‘i7’ (See example page 136).
4. Place a √ near each LMQ2 outcome statement and information at ‘g’ and ‘h’ that you use in your UOW at points ‘i2’ so as to indicate what you have ‘covered’, to what extent and so reveal what’s absent.

At points i3: What DoL bank of strategies will you use?
1. What Dimension of Learning applies? This question directs you to the specific Dimensions of Learning teaching and learning strategies and which you then record at point ‘i4’.
   a. Acquiring and integrating NEW knowledge = D2
   b. Extending and refining knowledge = D3
   c. Using knowledge meaningfully = D4

At point i4: The specific strategy is outlined
1. At this point you list the teaching and learning (DoL) steps you will follow during delivery. This section can become quite large so it may be useful to summarise the strategy at ‘i4’ and place the complete strategy in an appendix to the UOW (See Appendix 2, Page 165 for example). To complete this section you need to refer to the Dimensions of Learning teachers manual and detail the steps accordingly:
   a. Acquiring and integrating NEW knowledge = DIM2
      - Refer to pages 43-111 in Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
   b. Extending and refining knowledge = D3
      - Refer to pages 113-187 in Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
   c. Using knowledge meaningfully = D4
      - Refer to pages 189-258 Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.
At points i5 and i6: Who and what is available to support the lesson?

1. What physical and human resources do I have to support the UoW?
   a. Refer to LMQ4 and LMQ6 for your identified bank of resources and support team members.

   ![Important note]
   You should complete point ‘j’ by reviewing LMQ7 first and then return to point ‘i7’. At point ‘i7’ the Learning Manager identifies the specific assessment tasks they will use for each learning experience, from the bank of specific assessment tasks developed at ‘j’.

At point i7: How will I assess what I have taught?

Complete point ‘j’ first: see Step 11. Then ask yourself what assessment strategies apply for each learning experience/lesson? There must be a direct link between the defined learning outcome at point ‘i2’ and the actual strategy your incorporate at ‘i7’. Not every lesson requires a specific assessment task, but you should ascertain what has been learnt in a lesson so as to inform what you will do in the next one.

### An example of how i1 through i7 should be formatted.

<table>
<thead>
<tr>
<th>LEP sequence no.</th>
<th>Lesson sequence/outcome focus (LMQ2)</th>
<th>Main DoL dim focus</th>
<th>Sequential DoL strategies</th>
<th>Main resources (LMQ4)</th>
<th>Who will do what? (LMQ6)</th>
<th>Check for learning/assessment (LMQ7/DIM 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson 1</strong></td>
<td>Unit Introduction: Overview the learning journey to students</td>
<td>D1</td>
<td># Construct KWL chart</td>
<td>A list of learning outcomes and knowledge underpinning unit for learner reference</td>
<td>Learning Manager to lead this learning experience</td>
<td>An established/formulated HoM and Attitudes and Perceptions checklist</td>
</tr>
<tr>
<td></td>
<td>-Unit overview/ details</td>
<td></td>
<td># Organise Introduce a Frayer model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Revisit required Attitudes and Perceptions and Habits of mind required</td>
<td>D5</td>
<td># Store Guided Questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td>What is the history of societal change?</td>
<td>D2</td>
<td><strong>Construct Meaning</strong></td>
<td>Art gallery Visit</td>
<td>See staff list in App 4</td>
<td>Questionnaire See appendix 5.1</td>
</tr>
<tr>
<td></td>
<td>-Politics, rights, democracy, societal change.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[# See Appendix 2 for a sample of how this specific DoL strategy would be expanded for instruction purposes. Review also pages 43-11 in Marzano, R. J., & Pickering, D. J. et al. (1997). Dimensions of learning teacher’s manual (2nd ed.). Aurora, CO: Mid-continent Regional Education Laboratory.]

**Step 11**

In the LMP at LMQ7 you will have broadly conceptualised how you will assess the overall learning journey. At point ‘j’ you expand these concepts by developing a bank of specific assessment strategies based on those outlined broadly in LMQ7. There should be a clear link between the learning outcomes (LMQ2), the actual lesson (LMQ5) and the assessment strategies that you plan (LMQ7). With this in mind your key questions (Step 8) should capture your assessment intent and so guide the development of assessment tasks.
Use the focal questions (‘f’) to frame your individual assessment tasks

Ask yourself:
- What should the learner be able to ‘do’ or ‘say’, for example, if they had achieved the defined learning outcomes?
- What will I ‘observe’ if the learner has achieved the focal learning outcomes?
- What will comprise the evidence of what I ‘see’?

In most cases Step 11 requires you to create instruments and/or demonstration tasks that enable you to verify that your learner has met the outcomes. The important notion in this step is to collect evidence of attainment.

There are fundamentally three types of assessment:-

**Diagnostic:**
*Occurred before a learning journey and constitutes the process of LMQ 1.* In general you should consider and utilize the diagnostic tests and quantitative data collation processes of your state or territory and those particular to your school to streamline your processes and quality assure your work in the broader context of your school community and education district.

**Formative:**
*Occurred throughout the learning journey and constituted as an ongoing process that is used to ascertain learner progress and the effectiveness of instructional strategies and plans of action to date.* Formative assessment is an excellent indicator of how the learner/learning cohort are progressing during a UoW. Formative assessment should encourage the Learning Manager to review their strategies for corrective actions. Formative assessment also provides a feedback and reflection platform for both the learner and the Learning Manager.

**Summative:**
This form of assessment is used to formally ascertain whether the learner(s) has/have achieved the planned learning outcomes. This assessment mode can take the form of ‘formal assessments’ or a series of inter-related and focal ‘portal tasks’ [learn by doing task focused to an agreed series of outcomes], developed for or as part of the learning journey.
This is an example of how ‘j’ can be completed. These strategies become a bank of tasks for inclusion at ‘i’ and as applicable to each experience.

| Key assessment task or culminating task (embedded outcomes for all KLAS) | Group (5/6) Television News Report titled: “May The Force Be With You”:

  Investigate your selected concept.
  Ideate your story angle and compose a script, write a production plan and evaluate your first take. |
|---------------------------------------------------------------|---------------------------------------------------------------|
| **Formative assessment to scaffold task** | KLA based individual tasks:

  **Science demonstration**
  The demonstration builds individual performance confidence.
  **English persuasive exposition**
  Individual persuasive expositions will identify fields of interest or themes to enable the Learning Manager to create groups.
  **SOSE soapbox**
  Each group will take a soapbox session, utilising each group member to “test the water” on their emerging story angle.
  **The ARTS, freezeframe series**
  The freeze-frame series captures the focal theme of the TV news report and consolidates the group intention. |
| **Other assessment tools and instruments** | Group TV news report first takes will be peer evaluated and these ‘draft’ marks will act as feedback for further development.

  Dress rehearsals and practice shoots are also designed as opportunities for informal feedback and formative assessment. |

**Step 12**

Point ‘k’ is a delivery plan for a given teaching and learning period. This table is generally used when planning units of work across a semester and is used to earmark teaching and learning days and weeks accordingly. Use the table at ‘k’ to record the staging of each learning experience/lesson during your intended learning period.

**Step 13**

What are the adjustments that need to be made for ‘special consideration’ learners? Refer to LMQ3 where you will have detailed how your learners best learn. At point ‘l’ you give consideration and develop strategies for supporting ‘special consideration’ learners. See Appendix 1 for a sample formats.

When designing a UoW for a particular cohort, consider ways to profile learner needs: list specific considerations and requirements.

Cohort profiles should be developed with specific strengths and weaknesses for individual learners identified, and then specific strategies for capitalising on strengths and addressing weaknesses considered.

Those students who have Educational Adjustment Plans (EAPs) and Individual Education Plans (IEPs) need to be identified and specific strategies documented.

In some cases these students may require extra scaffolding to be able to complete the same tasks as other learners, in other cases; assessment may need to be modified so they are able to demonstrate their knowledge and understandings in different ways.

Having now completed the design phase the task now is to execute the UoW. There are a couple things that the Learning Manager should reflect on and then factor in preparing to work with learners in the execution of UoW.
By developing a LMP and a UOT you have engaged in a process of learning design. This means you have collected data, analysed it for points of reference to your learner/learning cohort and then selected a series of evidence based teaching and learning strategies — known DoLs — to achieve defined learning outcomes in learners.

DoL strategies become your ‘instructional plan’ and so point ‘i’ should be made a ‘ready reference’ document that you refer to when engaging with learners.

Many argue that there is an ‘art’ to teaching. By ‘art’ we mean there is a certain inherent attribute that the Learning Manager draws on to control the class engage learners to the topic and ensure an orderly process to learning. It is our opinion that an individual’s personality does play a part in being a good Learning Manager, but it is the use of evidence-based strategies, as represented by the DoL that makes the difference for learners. This means you’ll need to have developed a professional profile for your work as a Learning Manager, but DoL research will be your instructional guide.

Having now read through this chapter, your task now is to have a go at developing a Learning Experience Plan and Unit Overview (UO).

Treat this chapter as a ‘how to manual’ and work through the steps with respect to each of the following

Learning Experience Plans:
Develop a Learning Management Plan and then a series of LEPs focused to a typical 4 year old learning to tie his/her shoe laces.

A Unit Overview:
Develop a Learning Management Plan and a Unit of Work for an upper primary or lower secondary class focused to the following:-

- Transcontinental exploration over recent centuries for the Study of Society and the Environment
- Develop another by using the aforementioned topic to incorporate a series of other KLAS in a trans-discipline unit of work.

339 Marzano and Pickering (1997)
341 Marzano and Pickering (1997)
342 Marzano and Pickering (1997)
CHAPTER 11

Portal Task: Know it and Do it!
Paul O’Neill, Bruce Allen Knight and David Lynch

Learning outcomes
By completing this chapter you, as a developing Learning Manager, will be able to:

1. Demonstrate an understanding of changing circumstances that are impacting the work of educators in the 2000 epoch
   - Examine and generate scenarios for the future of education
   - Identify and utilise innovative solutions that inform the practice of Learning Manager
2. Apply the Learning Design framework
   - Utilise 8 Learning Management Questions (LMQs) as the organiser for a Learning Journey
   - Expand a Learning Management Plan (LMP) as an action plan to deliver a series of Learning Experiences
   - Utilise the concept of ‘portal task’ to inform the outcomes of a learning program
3. Explain and apply the component pieces of specific underpinning professional knowledge so as to support your work as a Learning Manager
   - Portal tasks

In this chapter we examine the concept of portal task; an important aspect of contemporary learning that beginning Learning Managers need to understand as fundamental to the learning design process. A ‘portal task’ is a ‘knowing and doing’ exercise that requires the learner to practice and then demonstrate acquired knowledge by applying it in a ‘real life’ situation. The word portal is an English derivation of a Latin word porta meaning ‘door’. This metaphor helps to define the meaning of portal task and when used as an assessment task, what it does. In brief, a portal task allows one to practice and then demonstrate what one knows and what one can do. The metaphor of the door symbolizes a process of going ‘through’ a series of inter-related activities or tasks which have a ‘culminating point’, at which time the learner demonstrates acquisition of ‘learning outcomes’ and the finalisation (if successful) of the learning program.

A portal task is a core strategy in the learning design process in so far as it ensures the translation of concepts into practice or performance. By this we mean portal tasks can be built into the learning design process at LMQ5 as an opportunity for the learner to practice and engage with core, underpinning knowledge and then used in LMQ7 as an assessment task where the learner demonstrates knowledge capabilities. There are similarities with the New Basics concept in Queensland, but the portal task in the learning management framework has a different logic.

Having made these introductory comments we turn to a revision of outcomes-based education for points of reference before examining the concept of portal task in more detail.

OUTCOMES BASED EDUCATION

In education ranks today we discuss what we term ‘learning outcomes’; which had their birth in the early 1990’s through the ‘outcomes based education’ movement. An outcomes–based education (OBE) approach is a method of curriculum design that focuses to what one wants the learners to actually do after they have been taught. OBE addresses the key questions:

1. What do you want the children to learn?
2. Why do you want them to learn it?
3. How can you best help children to learn?
4. How will you know what they have learnt?

The OBE approach contrasts traditional teaching, which uses objectives to plan what the teacher is to do or aspires to achieve. The portal task has a natural place in outcomes-based education because learners are engaged in ‘tasks’ or activities where they demonstrate what they know and can do.

Go to the Queensland Studies Authority Web site — http://www.qsa.qld.edu.au and look for a Key Learning Area (KLA) listed under various year levels. Choose a KLA, such as Science, SOSE or Mathematics and navigate to the syllabus for that area. On the syllabus page you will see a link to outcomes. Download and examine a sample of some outcomes for a KLA. You will notice they are listed under ‘strands’ or key content themes, and they are levelled from foundation to level 6. Within this range you will find that outcomes scale across the levels and build in intensity from foundation to level 6. For example look at an outcome such as Science: Energy and Change, outcome 1.1 and compare this to Science: Energy and Change, outcome 6.1. What do you discover?

Towers (1996) lists four points necessary in an OBE system to make it work. He states that: what the student is to learn must be clearly identified; the student’s progress needs to be based on demonstrated achievement; multiple instructional and assessment strategies need to be available to meet the needs of each student and adequate time and assistance need to be provided so that each student can reach their maximum potential.

Revisit one of the outcomes you found in the previous activity and determine the declarative and procedural knowledge required for that outcome. List what the student would need to know to demonstrate that outcome and what they would need to do to demonstrate that outcome.

PORTAL TASKS IN THE REAL WORLD

Portal tasks best lend themselves to learning programs where the learner is learning a ‘real life’ knowledge and skill set. Let’s begin this section by examining a ‘real world’ knowledge and skill set that most of us would be familiar with: learning to drive a car. Think about how you learnt to drive. Most of us can relate to mum or dad giving driving lessons in the family car and/or lessons with a driving school. These included a range of different types of driving experiences culminating in the ‘driving test’. Such tests typically contain both ‘written’ and ‘the practical’ (know and do). In effect you were a participant of what we call a portal task: a series of activities where the key knowledge and skill sets are learned and demonstrated in a real life setting. There are a couple of things that we need to make explicit.

First, you had a ‘teacher’ or a person who taught you how to drive, and importantly, someone who had driving experience. You were not left to your own devices and you no doubt were assisted through a series of developmental tasks as part of this experience. Second, the ‘learning journey’ would have comprised both the road rules, the name of the component parts of the car, etc (declarative knowledge) as well as plenty of driving practice (procedural knowledge). Could you imagine getting your licence on just the required declarative knowledge or conversely being told nothing about the road rules, but given a licence on how well you could handle the car? The important point thus far is that the portal task is a deliberate course of action, designed by a Learning Manager and which has the required declarative and procedural knowledge components. A portal task is not just about an engagement with one knowledge type but an inter-play of declarative and procedural knowledge in a meaningful context that results in the development of real-life knowledge capabilities.
Similarly in making a cake, having the ingredients alone are not enough to guarantee a good end product. As many of you will know the ingredients are very important but the ‘method’ to make the cake is just as important. The process of making the cake — following the recipe, bringing together prior knowledge about what works and doesn’t work in cake making and how to deal with the technology involved such as electric beaters, ovens, utensils and cooking equipment and whether ingredients need to be room temperature etc — are all part of the knowledge sets that make up a portal task focused on cake making. Once again the experience of a Learning Manager and a combination of procedural and declarative knowledge to learn becomes fundamental.

PORTAL TASKS IN THE DESIGN OF LEARNING EXPERIENCES

As we discussed earlier, the portal task concept can be incorporated in LMQ 5 as an opportunity for the learner to practice and engage with core, underpinning knowledge and then used in LMQ7 as an assessment task where the learner demonstrates knowledge capabilities. In summary then, a portal task is both a learning strategy and an assessment strategy! In this section we provide a step-by-step approach to the development and delivery of portal tasks as a central strategy to achieving a series of defined learning outcomes.

In developing a portal task the Learning Manager completes a Learning Management Plan as outlined earlier in Chapters 9 and 10. While the steps for developing portal tasks are inherent in these chapters, there are a couple of considerations that make the design of portal tasks different. The first consideration has to do with a portal task being the embodiment of all the defined learning outcomes in LMQ2. By this we mean a portal task is an activity that, when performed, enables the learner to demonstrate all the defined learning outcomes at once. Secondly, this ‘overall learning outcome’ is detailed as a ‘real life’ activity or task at LMQ7, which then becomes the goal when developing the learning journey at LMQ5.

For example, if the overall learning outcome was a young learner being able to: safely ride his push bike in the confines of a suburban street, the portal task would comprise the development of a series of learning experiences whereby the learner is taught the required procedural and declarative knowledge elements — that being the instructional strategy at LMQ5 — in the context of a suburban street. These same learning experiences would then culminate in the learner demonstrating the activity — the assessment strategy at LMQ7 — that being the learner safely riding his push bike in the confines of a suburban street, demonstrating all the defined learning outcomes — as detailed in LMQ2. In completing these experiences the learner has participated in a portal task; that is they learnt by doing and then got assessed while doing! The emphasis here is on the learner participating in a ‘real life’ task that is the product of a learning strategy designed by the Learning Manager and which is the embodiment of all the defined learning outcomes.

Let’s now examine the steps involved in developing a portal task as the learning strategy in a learning management plan. You will need to review the learning design steps as outlined in Chapters 9 and 10 for specific points of reference as portal task approaches impact only LMQs 1, 2, 5 and 7. This chapter therefore only elaborates these questions. In this section we will use the portal task briefly discussed above— that is focused on a young child learning to ride a pushbike safely in a suburban street-- to illustrate the learning design considerations.
The Steps to Follow

LMQ1

A portal task approach to learning design is best suited to learning journeys that require a ‘real-life’ task or activity to be demonstrated as the overall learning outcome. Vocational learning programs lend themselves to this type of approach as do learning programs that have a DoL, Dimension 4 — *use knowledge meaningfully* — focus.

**Step 1**
As per LMQ1 begin the development of a portal task learning strategy by broadly thinking about what your planned ‘learning journey’ will focus on? At this stage you are aiming to decide the *actual task* that will become the embodiment of all the learning outcomes at LMQ2. The following questions might be useful:

- What is the overall learning outcome that I want the learner to demonstrate? What do I want my learner to be able to do?
- What is the actual ‘task’ then, that would enable me to ‘teach’ the learner and then to ‘see’ that he/she has achieved all the defined learning outcomes; as will be defined in LMQ2?

Record the focus of your learning management plan as a ‘title’ for your portal task in the title section on your LMP. You will come back to this step when you begin planning for LMQ5.

**e.g.**
Portal task = Ride a push bike safely in the confines of a suburban street

**Step 2**
- Now complete all the steps in LMQ1 as applicable

LMQ2

LMQ2 is about the setting specific focal learning outcomes that make up the portal task. These learning outcomes are the chief focus for the learning management plan and together are the embodiment of the portal task. These learning outcomes are used as a reference for all questions that follow. Particular reference is made to the sum of these learning outcomes — that being the actual portal task — at LMQ5 (the learning journey stage) and also at LMQ7 (the assessment strategy).

Remember: learning outcome statements are organised as declarative and procedural knowledge elements because the strategies that are devised in LMQ5 are based on the knowledge ‘type’ to be taught.
LMQ2, in effect, defines the specific goals or success indicators of the learning program and therefore becomes the starting point, in a backward mapping activity, for the learning strategies that are detailed in LMQ5. In a portal task situation the portal task is, in effect, an overall learning outcome as well as the actual delivery strategy and the assessment device.

Step 1
Using the portal task idea you installed as a title on your learning management plan, think about what you want the learner to be able ‘to do’ and ‘to know’ as a result of participating in this portal task.

Step 2
In LMQ 2 on your learning management plan install an overall ‘portal task descriptor’ (or statement) that illustrates/ outlines the portal task. Be sure to use the sentence stem — *the learner will* — to make the actual demonstrations required to successfully complete the portal task explicit.

Step 3
Write a series of specific learning outcome statements that inform the ‘portal task descriptor’ using the sentence stem: *The learner will specifically be able to:* followed by a series of dot points — arranged according to their knowledge type — to frame your portal task. This language set makes the choosing of strategies for LMQ5 and LMQ7 easier as the elements are tangible and concise statements that can be ‘ticked off’.

**Portal task** = The learner will ride a pushbike safely in the confines of his/her suburb.

*The learner will specifically be able to:*

**Declarative Knowledge**
- Name the component pieces of a push bike
- Understand that there are a series of rules that govern the riding of a bike in a suburban street
- Articulate the applicable road rules

**Procedural Knowledge**
- Use pedal power, in tandem with ‘balance’, to operate a push bike in the confines of a suburban street
- Make turns and use hand signals as applicable when riding on a suburban street
- Apply road rules to ensure safe passage while riding on a suburban street

**LMQ3**

**Step 1**
Complete all steps as applicable for LMQ3.

**LMQ4**

**Step 1**
Complete all steps as applicable for LMQ4.
**LMQ5**

LMQ5 is the instruction design stage where the overall learning journey, in this case the learnings that inform a successful portal task, is conceptualised into a broad series of sequential learning experiences. In developing LMQ5 for a portal task, the Learning Manager is conscious of the ‘portal task descriptor’ — that being the defined portal task statement in LMQ2 — and which also informs the assessment regime in LMQ7. With these points in mind the Learning Manager develops LMQ5 as a series of learning experiences that will inform a successful portal task demonstration.

**Step 1**

Do not complete LMQ5 yet. Continue onto to LMQ7. Come back to LMQ5 and LMQ6 when you have completed LMQ7.

---

By completing LMQ7 before LMQ 5, you will create the actual ‘portal task’, or an ‘end point’, that you will then work towards when developing LMQ5. This process is known as backward mapping.

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It is the established learning outcomes in LMQ2 that direct the Learning Manager to the specific instructional strategies to be used. The specific instructional strategies for LMQ5 are contained in Dimensions 2, 3 and 4 of the *Dimensions of Learning instructional design framework*.

**LMQ7**

LMQ7, in a portal task case, is where the Learning Manager develops a specific real life task or activity that, when successfully completed, forms the evidence that indicates the learner’s achieving of the defined learning outcomes (from LMQ2). In effect the actual portal task (or learning goal) takes shape in LMQ7.

LMQ7, in a portal task case, is an actual ‘task’ developed as a direct correlate to that of LMQ2 and which operates to confirm that LMQ5 strategies, and the overall purpose of the LMP, have been successful. This means the Learning Manager must design, at LMQ7, the specifics of the portal task so that they reveal the extent of achievement with respect to the defined learning outcomes (LMQ2).

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**The Steps to Follow**

**Step 1**

Revise the ‘portal task descriptor’ and the **learning outcomes** for the learning journey from LMQ2.
LMQ7 is about developing the actual portal task as a direct correlate to LMQ2. Ask yourself:
- What are the specifics of a portal task that engage the learner to learn and then demonstrate what they know; with respect to LMQ2?
- What would I ‘see’ if the learner was to have achieved the learning outcomes?
- What are the specifics of the portal task that will enable me to ‘see’ such achievements?

Step 2
Use the portal task template (see Table 11.1) to frame your development of the portal task. To explain the proforma we use letters A through F as points of reference, as indicated on Table 11.1. Keep in mind the actual strategies to develop such knowledge capabilities will be developed in LMQ5 as a series of Learning Experience Plans. The portal task descriptor details the exit attributes of the portal task.

Table 11.1 An example of a Portal Task Template: A blank Portal task template appears in Appendix 4.

<table>
<thead>
<tr>
<th>(LMQ2) The portal task</th>
<th>A. The learner will ride a pushbike safely in the confines of his/her suburb</th>
</tr>
</thead>
<tbody>
<tr>
<td>(LMQ2) Outcomes to be demonstrated</td>
<td>B. The learner will specifically be able to:</td>
</tr>
<tr>
<td></td>
<td>Declarative knowledge</td>
</tr>
<tr>
<td></td>
<td>• Name the component pieces of a push bike</td>
</tr>
<tr>
<td></td>
<td>• Understand that there are a series of rules that govern the riding of a bike in a suburban street</td>
</tr>
<tr>
<td></td>
<td>• Articulate the applicable road rules</td>
</tr>
<tr>
<td></td>
<td>Procedural knowledge</td>
</tr>
<tr>
<td></td>
<td>• Use pedal power, in tandem with ‘balance’, to operate a push bike in the confines of a suburban street</td>
</tr>
<tr>
<td></td>
<td>• Make turns and use hand signals as applicable when riding on a suburban street</td>
</tr>
<tr>
<td></td>
<td>• Apply road rules to ensure their safe passage while riding on a suburban street</td>
</tr>
<tr>
<td>The actual demonstration task</td>
<td>C. On February 3, The learner will ride his pushbike in the confines of his suburban street for a period of 20 minutes. During this time the learner will be required to demonstrate the following:</td>
</tr>
<tr>
<td></td>
<td>(1) The ability to:</td>
</tr>
<tr>
<td></td>
<td>• use pedal power while maintaining balance on the bike</td>
</tr>
<tr>
<td></td>
<td>• make judgements with respect to required speed and pedal power for various road conditions</td>
</tr>
<tr>
<td></td>
<td>• apply foot and hand brakes in a safe and timely manner,</td>
</tr>
<tr>
<td></td>
<td>• make hand signals, as applicable, while riding the bike</td>
</tr>
<tr>
<td></td>
<td>• observe and comply with the rules of the road</td>
</tr>
<tr>
<td></td>
<td>(2) A knowledge of the component parts of the pushbike.</td>
</tr>
<tr>
<td>The evidence of successful completion</td>
<td>D. The evidence that will support the successful completion of this portal task will include:</td>
</tr>
<tr>
<td></td>
<td>• a video that captures the learner riding his bike safely</td>
</tr>
<tr>
<td></td>
<td>• a completed checklist of attributes that the Learning Manager has observed and which are illustrated in the video</td>
</tr>
<tr>
<td>(LMQ4) Resources</td>
<td>E.</td>
</tr>
<tr>
<td></td>
<td>• a pushbike of an appropriate size</td>
</tr>
<tr>
<td></td>
<td>• a checklist of attributes that capture the learning outcomes of the portal task</td>
</tr>
<tr>
<td></td>
<td>• a video camera</td>
</tr>
<tr>
<td>(LMQ6) Who will do what?</td>
<td>F. The Learning Manager will supervise the compilation of performance evidence, while the learner’s mother will act as a look out for safety reasons.</td>
</tr>
</tbody>
</table>
Step 3
At point A install the title of the portal task as written at LMQ2. For more complex portal tasks the Learning Manager is encouraged to install a succinct statement that describes / introduces the actual portal task.

Step 4
At point B ‘cut and paste’ the learning outcomes as outlined in LMQ2

Step 5
Point C requires the Learning Manager to specifically outline the portal task. In this section you aim to make explicit; what is to be demonstrated, by who, when, where, and by how and for how long.

Step 6
With reference to the learning outcomes at Point B and the specifics of the task at Point C identify the things that you will collect/ use to evidence the learner as having demonstrated the required learning outcomes. Record this information at point ‘D’.

Step 7
Refer to LMQ4 and indicate the resources that will be required for the specifics of the portal task at point ‘E’.

Step 8
Refer to LMQ6 to ascertain the available human resources that can be harnessed to support the portal task at point ‘F’.

Step 9
Record your ‘answer’ to LMQ7 on the learning management plan as a summary of the task with a reference to the actual portal task template, which you should locate in the appendix of the plan.

Having now developed the portal task template, the task now is to return to LMQ5 and continue the learning design process by planning a series of learning experiences that will support and inform the successful completion of the portal task. Keep in mind the concept of portal task inclines the Learning Manager to treat the portal task not only as an assessment task or ‘end point’ but as an opportunity for the learner to ‘learn by doing’. By this we mean the portal task template should be used as the chief resource for staging a series of portal task focussed learning experiences.

Step 10
Complete LMQ5 (See Chapters 9) using the portal task template you have developed for LMQ7 as your ‘end point’ or your overall instructional goal.

Step 11
Complete all outstanding LMQs (LMQ6 and 8) to develop a completed LMP. Return to LMQ7 to install any additional information that you subsequently develop.

Step 12
Using LMQ5 as your reference, develop a series of Learning Experience Plans (Chapter 10) or a Unit of Work---which ever is applicable---and then begin implementing your portal task learning journey.

Think of a ‘learning situation’ that lends itself to a portal task approach when designing learning experiences for learners in a classroom. Using the template that appears in the appendix, complete a LMP using the steps outlined in this section.
PORTAL TASKS IN LEARNING MANAGER PREPARATION

In this section we examine how portal tasks can be used to support the student Learning Manager to develop Learning Manager capabilities. We have included this section to illustrate to you, the developing Learning Manager, that portal tasks can be highly effective in preparing you for real life experiences such as ‘classroom teaching’. By providing you with insight into this type of portal task situation you will appreciate how portal tasks are used to prepare you for your future work. This section also serves as yet another exemplar of a portal task.

The fundamental understanding in the learning management concept and the way it is played out in Learning Management preparation courses is that university staff, alone, cannot achieve the outcomes of portal tasks in their students. Let us explain. A major critique of the standard ‘teacher preparation’ model is that students are routinely despatched to do ‘prac teaching’ with individual teachers who may or may not be willing participants. Each teacher, drawing on a core ideological component of teacher culture, undertakes teaching in an idiosyncratic way, expressing their individuality. Student teachers then learn that ‘teaching’ is made up in context by individuals acting alone, in contrast to being inculcated into professional standards of practice and a shared professional discourse.

The learning management approach, encapsulated in the ‘teaching schools’ model described by Turner, has a different premise. It relies on the classroom mentor sharing the knowledge and skill set of the university lecturer in respect to what is expected of the student teacher. The student teacher experience then is planned as a unified whole, in which lecturer and mentor seek the same outcomes: not variations, or similar, but the same, as specified in the portal task outcomes. The obvious corollary is that the portal task, in this case, involves planning across those courses/subjects being offered by the university in a particular term/semester by lecturers and mentors so that everyone is on ‘the same page’ at the same time. On the one hand, unless this occurs in a learning management preparation course for instance, the program is just another ‘traditional education course’ with obscure terminology. On the other hand, this might just be the kind of approach required if teaching is to mature into a profession.

The key points we have made in this section thus far are that portal tasks are learning activities where University staff and the teacher mentor, with equal but different skill sets, work together to develop a learning context that has provision for specified and agreed procedural and declarative knowledge acquisition; has a developmental sequence; are staged in real life situations and culminate in a task that is typical of the knowledge capabilities required of such a learning program. With these points in mind, the portal task can be engineered to be both the learning strategy at LMQ5 and the assessment centre at LMQ7 for a learning program centred on developing the student Learning Manager’s capabilities. These elements combine real life learning and assessment, in real life contexts and involve collaborative work between the university and the worksite or their equivalent.

Lynch outlines one of the major concerns with practicums in teacher education programs is its reliance on the false assumption that student teachers will be able to automatically translate the theoretical knowledge learnt on campus into actionable sequences once in a classroom situation. Darling-Hammond, Ancess and Falk argue for learning tasks that are designed to provide the student teacher with genuine learning experiences that provide opportunities for the student teacher to demonstrate the application and production of such knowledge, rather than the reproduction of ‘correct answers’. In the past, some teacher education courses operated on what was termed the ‘academic tradition’ where philosophy, sociology and psychology were all taught as foundation disciplines that, so it was thought, ‘beginning teachers could ill-afford not to have’. What was required from this model was that beginning teachers make the required ‘connection’ and apply the ‘theoretical knowledge’ in a practical situation. Smith believes this to be an unfounded assumption on the part of teacher educators and that the result is a lot of teachers doing a lot of different things without a lot of understanding about what they are doing or why they are doing it.

In contrast, a portal task in a learning manager preparation program makes a “break” from the conventional teacher education programs of the past. A portal task represents the construct of ‘performativity’ offering the theoretical link between ‘theory’ and ‘practice’. In the practical sense, the portal task compels and ensures that there are direct and meaningful links between what the classroom teacher supervisor/mentor, the lecturers teaching courses in the University and the student teacher all do.
Portal tasks, in a Learning Manager preparation context, link theory and practice through an expectation that the student Learning Manager will perform aspects of the task in order to demonstrate that they have learnt the required theoretical capabilities. The following example of a portal task in Table 11.3 outlines how the student Learning Manager is required to implement learning management knowledge in a schooling situation.

A final note about staging portal tasks is the emphasis that the Learning Management concept places on instructional practices. In this context, portal tasks are not just about demonstrating ‘any’ knowledge. They are intentional in so far as they make explicit what ‘good learning management practice’ is and draw on such knowledge and theories that are known to achieve outcomes for learners. As Smith reminds us,

“We need a more systematic and evidence-based approach to ‘teaching’ that is more than the sum of everyone’s subjective opinions about what is good in producing learning outcomes, one with a common technical language and some core concepts, dare I say ‘essential professional knowledge’?”

In summation, the Learning Management preparation model relies entirely on a theoretical and practical link being established and sustained for the following reasons:

1. The Learning Management student is primarily in classrooms and schools in order that she or he can demonstrate a capability in knowledge and procedures that the on-campus courses contain.

2. Learning Managers are informed by the ‘Learning Management’ concept (design of pedagogical strategies that achieve learning outcomes); with an emphasis on achieving ‘learning outcomes’. This requires design practice and then a mechanism to ensure such has been achieved.

The portal task is such a mechanism: one that enables learning management theory to be connected to practice and the development of Learning Manager capabilities to occur.

**CONCLUSION**

Portal tasks are a strategy that enables the Learning Manager to design, deliver and assess learning programs that have a direct real world correlate. The notion of portal task fits nicely with learning programs that have a vocational or ‘task specific’ orientation and are useful when designing learning experiences which factor Dimension 4 learning experiences — use knowledge meaningfully — of the DoL research framework.

In summary, portal tasks have the unique ability to be built into the learning design process at LMQ5 as an opportunity for the learner to practice and engage with core, underpinning knowledge and then used in LMQ7 as an assessment task where the learner demonstrates knowledge capabilities. The portal task is therefore a ‘learn by doing’ task!

---

**Further suggested activity**

Visit Education Queensland’s New Basics Project at the following web address:

On this page there are various suites of Rich Tasks suitable for various year levels in Queensland Schools. Examine the tasks that schools can select and see how the Rich Task draws on a range of skills and knowledge to support the development of the culminating task.
Table 11.3 Example of a portal task

<table>
<thead>
<tr>
<th>(LMQ2) The portal task</th>
<th>Working as a Learning Manager to design, deliver and assess a learning program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This portal task provides an opportunity for the student Learning Manager to be immersed in the work of a Learning manager by designing, 'delivering' and evaluating an assigned learning program. The emphasis in this portal task is on achieving learning outcomes for an assigned learner group.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(LMQ2) Outcomes to be Demonstrated</th>
<th>The student Learning Manager will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK1.1</td>
<td>Acquire professional knowledge</td>
</tr>
<tr>
<td>PK1.3</td>
<td>Reflect critically on, evaluate and improve their professional knowledge and practice</td>
</tr>
<tr>
<td>P1.1</td>
<td>Provide learning experiences that engage learners in the required aspects of the topic, problem or issue.</td>
</tr>
<tr>
<td>P2.1</td>
<td>Design and implement learning experiences that acknowledge and cater for individual differences</td>
</tr>
<tr>
<td>P2.3</td>
<td>Design and maintain a learning environment that encourages learners’ active engagement and involves them in making decisions</td>
</tr>
<tr>
<td>P3.4</td>
<td>Demonstrate and utilise expert pedagogy to meet predetermined educational outcomes.</td>
</tr>
<tr>
<td>P5.1</td>
<td>Construct learning goals and experiences that are informed by the prior knowledge, experiences and interests of learners.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The actual demonstration task</th>
<th>The student Learning Manager is to work with an assigned learner group for a period of ten weeks on a learning task as set by their teaching mentor.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The process of completing a learning management plan for an assigned learner group, the subsequent delivery of an associated learning program, and the student Learning Manager evaluating the experience, forms the overall task. A suggest approach for the mentor teacher includes:</td>
</tr>
<tr>
<td></td>
<td>1. Introduce the student Learning Manager to a designated learner group</td>
</tr>
<tr>
<td></td>
<td>2. Provide the student Learning manager with a detailed overview of the learner group and his/her/ their progress to date. The deficit in such an overview should become the focus of the task over a period of 10 weeks. Such a focus should, ideally, be in an aspect of literacy, numeracy or social development.</td>
</tr>
<tr>
<td></td>
<td>3. Allow the student Learning Manager to modify and develop their final learning management plan over the course of the first two weeks. The logic is to allow the student Learning Manager to experience the answering of each LMQ, knowing they won't get it right the first time.</td>
</tr>
<tr>
<td></td>
<td>4. With respect to LMQ5, provide the student Learning Manager with broad strategies, but allow them some latitude in developing an appropriate teaching program.</td>
</tr>
<tr>
<td></td>
<td>5. Facilitate regular opportunity for the student Learning Manager to deliver the program according to the plan (10 x 1 hour sessions) and to debrief with you on progress/difficulties</td>
</tr>
<tr>
<td></td>
<td>6. The student Learning Manager is to compile a reflective diary as a record of the experience, with particular emphasis on the insights into learning they make. Emphasis is placed on the student Learning Manager using research to support the decisions/findings they make.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demonstration and assessment Requirements</th>
<th>At the conclusion of the 10 week experience, the mentor teacher will appraise the student Learning Manager’s performance during the portal task using the criteria supplied.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The student Learning Manager is required to submit, as evidence of successful participation in the portal task, the following to the Professional Learning Leader for appraisal and then the course lecturer for final grading:</td>
</tr>
<tr>
<td></td>
<td>• A completed LMP</td>
</tr>
<tr>
<td></td>
<td>• A series of LEPs which reflect the attributes of the LMP</td>
</tr>
<tr>
<td></td>
<td>• A portfolio of student work samples that indicate the progress of learners</td>
</tr>
<tr>
<td></td>
<td>• A reflective diary that records insights gained and learnings made</td>
</tr>
<tr>
<td></td>
<td>• An annotated bibliography that indicates the student Learning Manager has conducted research to support their portal task endeavours.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMQ4 Resources</th>
<th>A defined group of learners who the student Learning Manager will work with</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>An appropriate space for the Learning Manager to deliver the learning program and which enables the mentor teacher to provide supervision as required</td>
</tr>
<tr>
<td></td>
<td>Specific resources that support the student Learning Manager’s work with an identified learning cohort.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMQ6 Who will do what?</th>
<th>1. Mentor teacher:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Facilitate the completion of the portal task in their classroom context</td>
</tr>
<tr>
<td></td>
<td>• Provide supervision and guidance to the student Learning Manager as the task is completed</td>
</tr>
<tr>
<td></td>
<td>• Appraise the student Learning Manager’s performance in this task</td>
</tr>
<tr>
<td></td>
<td>2. University lecturer</td>
</tr>
<tr>
<td></td>
<td>• Provide advice and support to the mentor teacher as required</td>
</tr>
<tr>
<td></td>
<td>• Work with the mentor teacher to recommend a final performance grade</td>
</tr>
</tbody>
</table>
Bibliography


Jacob, M. (2000). “‘Mode 2’ in context: The contract researcher, the University and the knowledge society.” In M. Jacob & T. Hellstrom (Eds.), The future of knowledge production in the academy (pp. 11-27), Buckingham, UK: Open University Press and The Society for Research into Higher Education.


Knight, C., & Knight, B.A. (2004). “Teacher experiences of inclusion of students with special educational needs into schools.” In A. Harrison, B. Knight, & B. Walker-Gibbs (Eds.), Educational research: Partnerships, initiatives and pedagogy (pp. 111-128). Flaxton, QLD: PostPressed.
The Rise of the Learning Manager


The Rise of the Learning Manager


Queensland Department of Education. (1990). *Focus on schools: The future organisation of services for students* (report of a process conducted by Policy Unit), Department of Education Printer, Brisbane.


Scholz, R. (2001). “Learning about transdisciplinarity: Where are we? Where have we been? Where should we go?.” In J. Thompson Klein, W. Grossenbacher-Mansuy, R. Häberli, A. Bill, R. W. Scholz & M. Welti (Eds.),


The Rise of the Learning Manager


APPENDICES

Appendix 1 Unit Overview Template Exemplar

Unit Overview Template (Exemplar)

<table>
<thead>
<tr>
<th>Year level:</th>
<th>Middle Years (7/8/9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit title:</td>
<td>May the force be with you</td>
</tr>
<tr>
<td>Key focal question:</td>
<td>Is everything in nature and society powered by force?</td>
</tr>
</tbody>
</table>

Rationale (May draw on LMOs 1, 2 and 3, DIMs 1, 4 and 5):
This unit explores the concept that everything is powered by a force. Students will understand the role force, motion and energy play in our lives (both in science and nature). Four KLA’s are explicitly dedicated to this transdisciplinary Unit in order to build deep knowledge of how change is effected, intentionally and incidentally. In groups of 5/6 students will create and film a Television News Report that demonstrates humans can influence and change nature.

Host KLA’s:
Science, English, SOSE and The ARTS

Syllabus Outcomes (LMQ1 and LMQ2)

<table>
<thead>
<tr>
<th>PRIOR LEARNING (LMQ1)</th>
<th>FOCAL OUTCOMES (LMQ2)</th>
<th>FUTURE LEARNING (The next LMP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will be able to:</td>
<td>Demonstrate an understanding of energy changes, transfer &amp; transformation</td>
<td>Create different energy forces and utilise them in situations that require power</td>
</tr>
<tr>
<td>Recall basic definitions of energy, force and motion and name ‘Interactions’ that occur between living &amp; non-living parts of the environment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOCUS QUESTIONS (LMQ1 and LMQ2,)
1. SCI: What is the nature of energy and how do we use it?
2. ENG: How are we affected by the force of the written word?
3. SOSE: Can the collective power of people influence political agendas?

Knowledge Focus (LMQ2, DIM 2)

<table>
<thead>
<tr>
<th>Declarative Knowledge (What do I want my learners to know?)</th>
<th>Procedural Knowledge (What do I want my learners to be able to do?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What energy is and does and how it is used to affect change and to achieve affect.</td>
<td>Demonstrate their knowledge and understanding of energy and change.</td>
</tr>
<tr>
<td>The impact of the written word: a study of both visual &amp; musical literacy.</td>
<td>Write an exposition genre about a field of interest central to the unit focus.</td>
</tr>
<tr>
<td>The history of societal change from the Industrial Revolution – Digital Age.</td>
<td>Analyse societal change in a context of ecological sustainability / impact on lifestyle.</td>
</tr>
<tr>
<td>How society responds to and explores energy and forces through art &amp; vice versa.</td>
<td>Concept design and produce a television news report that presents ideas to address audience needs and wants.</td>
</tr>
</tbody>
</table>
### Vocabulary

<table>
<thead>
<tr>
<th>Force</th>
<th>Invention</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Motion</td>
<td>Reaction</td>
</tr>
<tr>
<td>Symbolism</td>
<td>Exposition</td>
<td>Literacy</td>
</tr>
<tr>
<td>Persuasion</td>
<td>Rights</td>
<td>Power</td>
</tr>
<tr>
<td>Government</td>
<td>Politics</td>
<td>Democracy</td>
</tr>
</tbody>
</table>

### Concepts

<table>
<thead>
<tr>
<th>Cause-effect patterns</th>
<th>Episode patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Societal change</td>
<td></td>
</tr>
<tr>
<td>The power of persuasion</td>
<td></td>
</tr>
<tr>
<td>Concept design and production</td>
<td></td>
</tr>
<tr>
<td>Democratic election</td>
<td>Political structure</td>
</tr>
</tbody>
</table>

### Summary of Planned Learning Journey

**LEP sequence no.** | **Lesson sequence/outcome focus (LMQ2)** | **Main DoL dim focus** | **Sequential DoL strategies** | **Main resources (LMQ4)** | **Who will do what? (LMQ6)** | **Check for learning/assessment (LMQ7/DIM 4)** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 Monday</td>
<td>Unit Introduction: Overview the learning journey to students</td>
<td>D1</td>
<td># Construct KWL chart</td>
<td>A list of learning outcomes and knowledge underpinning unit for learner reference</td>
<td>Learning Manager to lead this learning experience</td>
<td>An established/formulated HoM and Attitudes and Perceptions checklist</td>
</tr>
<tr>
<td>Lesson 1</td>
<td>Knowledge:- Unit overview/ details - Revisit required Attitudes and Perceptions and Habits of mind required</td>
<td>D5</td>
<td># Organise Introduce a Frayer model</td>
<td>Art gallery Visit</td>
<td>See staff list in App 4</td>
<td>Questionnaire See appendix 5.1</td>
</tr>
</tbody>
</table>

**Week 1 Tuesday** | What is the history of societal change? | D2 | Construct Meaning | Art gallery Visit | See staff list in App 4 | Questionnaire See appendix 5.1 |
|                   | Knowledge:- -politics, rights, democracy, societal change. | | | | |

### Special Needs Considerations

<table>
<thead>
<tr>
<th>Specific student needs</th>
<th>Adjustments and considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profiled the class using a Multiple Intelligence test</td>
<td>Wide range of intelligences, with a concentration in the verbal/linguistic area</td>
</tr>
<tr>
<td>Class responds best to regular interaction and discussion within learning</td>
<td>Provide learning opportunities for down loading information and engaging in discussion to consolidate ideas, timed every 20/30 minutes to create time and make space to learn</td>
</tr>
<tr>
<td>65% class are indigenous and or ESL</td>
<td>Incorporate and demonstrate cultural perspectives and knowledge in content and processes throughout unit</td>
</tr>
<tr>
<td>2 male students identified with significant behavioural issues</td>
<td>Establish communication book with parent/caregiver and build in responsible roles within class and group work and respond to positive behaviour with public &amp; private recognition; set and maintain clear &amp; realistic expectations</td>
</tr>
</tbody>
</table>

### LMQ7: Assessment Strategies

<table>
<thead>
<tr>
<th>Key assessment task or culminating task (embedded outcomes for all KLAs)</th>
<th>Group (5/6) Television News Report titled: “May The Force Be With You”. Investigate your selected concept. Ideate your story angle and compose a script, write a production plan and evaluate your first take.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formative assessment to scaffold task</td>
<td>KLA based individual tasks: Science demonstration The demonstration builds individual performance confidence. <strong>English persuasive exposition</strong> Individual persuasive expositions will identify fields of interest or themes to enable the Learning Manager to create groups. <strong>SOSE soapbox</strong> Each group will take a soapbox session, utilising each group member to “test the water” on their emerging story angle. <strong>The ARTS, freeze-frame series</strong> The freeze-frame series captures the focal theme of the TV news report and consolidates the group intention.</td>
</tr>
<tr>
<td>Other assessment tools and instruments</td>
<td>Group TV news report first takes will be peer evaluated and these “draft” marks will act as feedback for further development. Dress rehearsals and practice shoots are also designed as opportunities for informal feedback and formative assessment.</td>
</tr>
<tr>
<td>Week</td>
<td>Mon</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>1</td>
<td>Unit introduction and rationale</td>
</tr>
<tr>
<td>2</td>
<td>Art Gallery visit</td>
</tr>
<tr>
<td>3</td>
<td>How are we affected by the force of the written word?</td>
</tr>
<tr>
<td>4</td>
<td>Set scene for Scientific day with buddy class e.g. Yr11 transition Dress rehearsal</td>
</tr>
<tr>
<td>5</td>
<td>The collective power of people to influence political agenda</td>
</tr>
<tr>
<td>6</td>
<td>Formation of groups by fields of interest</td>
</tr>
<tr>
<td>7</td>
<td>How do we respond to and explore energy and force through art?</td>
</tr>
<tr>
<td>8</td>
<td>Group preparation supported with ‘director in residence’</td>
</tr>
<tr>
<td>9</td>
<td>Each group conferences with teacher marker to the task criteria</td>
</tr>
<tr>
<td>10</td>
<td>Group live presentations and assessment</td>
</tr>
</tbody>
</table>
Appendix 2
SAMPLE SEQUENTIAL DOL STRATEGIES FOR A UNIT OF WORK
This is an example of how a Learning Manager would expand the DoL strategies as required at i4 on page 129 and 136

Dimension 2 Acquire and Integrate new knowledge strategies

A. Construct

1. Use the following KWL chart that follows:

<table>
<thead>
<tr>
<th>Know</th>
<th>Want to Know</th>
<th>Learnt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Learners individually capture what they know about the concept that everything in nature and society is powered by a force.

2. HoM focus: Using past knowledge for new situations
Highlight that in summarizing their knowledge in the ‘K’ column we will be focusing on using past knowledge for new situations.

3. Feedback in small groups re: individual K column. Elect group spokesperson to report back to learner cohort with group summary for compilation on whiteboard as the ‘K’ column of the KWL. Use volunteers as scribes.

4. Negotiate as a cohort through the diverse understandings of the same concept, everything in nature and society is powered by a force. In arriving at summary points for the cohort compilation in the ‘K’ column, learners will have negotiated meaning and collaboratively developed understanding of the focus concept.

5. HoM focus: Understanding and empathy
Highlight that in compiling this summary through learner cohort negotiation we have been focusing on working together with understanding and empathy.

6. Hand out unit rationale and assess statements in ‘K’ column in terms of the context of the May the force be with you rationale through discussion.

7. As a cohort consider whiteboard KWL chart and identify gaps or deficits in knowledge (as captured in the ‘K’ column) continually editing the list to achieve succinct statements. The lens is now through the context of the unit rationale.

8. Hand out table of intended unit outcomes. Compare the final ‘K’ column to intended outcomes. Negotiate as a class whether the outcomes statements are appropriate or need refining.

9. HoM focus: Persisting and striving for accuracy
Highlight that in discussing and negotiating unit intended outcomes you are persisting and striving for accuracy. Reflect with the learners that these HoMs set a clear path for the deep and broad learning the unit intends.

B. Organise

1. Introduce Frayer Model (see below): concept sits in the middle as below in grey, then fill in the quadrants.
The Frayer Model

Arrive at a class Frayer Model as a summary of cohort knowledge (at this point) in relation to the concept *that everything is powered by a force*. The whiteboard ‘K’ column will be central to this task.

2. Work through and discuss unit over planner 10-week timetable. Look at each week in detail to frontload the sequence of activities and KLA focus for learners.

3. Map assessment staging throughout the unit and brainstorm as you frontload the unit assessment items.

C. Store

Homework
Fill in the ‘L’ column to summarise what you have learnt today about the concept *that everything is powered by a force*.

Guide questions
1. What is energy?
2. How is energy used?
3. What does it do?
4. How does it work?
5. How does it affect me?
6. How do things change?
APPENDIX 3 : The Learning Management Plan- blank template

<table>
<thead>
<tr>
<th>Learning Management Plan for: ____________________</th>
<th>Learning Management Plan Focus: ____________________</th>
</tr>
</thead>
</table>

(1) What does my Learner Already Know?  
(2) Where does my learner(s) need / want to be?  
My learner will be able to:  
(Procedural Knowledge):  
(Declarative Knowledge)  
(3) How does my learner best learn?  
(4) What resources do I have at my disposal?  
(5) What will constitute the learning journey?  
<table>
<thead>
<tr>
<th>LEP Sequence No.</th>
<th>LEP/ Lesson sequence/ Outcome focus (LMQ2)</th>
<th>Learning Experiences</th>
<th>Main DoL focus</th>
<th>Time Frame (LMQ4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(6) Who will do what?  
(7) How will I check to see my learner has achieved the defined learning outcomes?  
(8) How will I inform the learner and others of the learner’s progress?
<table>
<thead>
<tr>
<th>(LMQ2) The portal task</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(LMQ2) Outcomes to be</td>
<td></td>
</tr>
<tr>
<td>demonstrated</td>
<td></td>
</tr>
<tr>
<td>The actual demonstration task</td>
<td></td>
</tr>
<tr>
<td>The evidence of successful completion</td>
<td></td>
</tr>
<tr>
<td>(LMQ4) Resources</td>
<td></td>
</tr>
<tr>
<td>(LMQ6) Who will do what?</td>
<td></td>
</tr>
</tbody>
</table>