Advances in Business Education and Training 3

Piet Van den Bossche
Wim H. Gijselaers
Richard G. Milter *Editors*

Building Learning Experiences in a Changing World

Springer

Building Learning Experiences in a Changing World

Advances in Business Education and Training

Volume 3

Scope of the series

Advances in Business Education & Training is a Book Series to foster advancementin in the field of Business Education and Training. It serves as an international forum for scholarly and state-of-the-art research and development into all aspects of Business Education and Training. It will not only publish empirical studies but also stimulate theoretical discussions and address practical implications. Also reviews of important developments in the field are encouraged. The editors welcome contributions in which a line of reasoning is illustrated with experiments, design-based studies, best practices, and theory development. In addition, the editors encourage submission of new ideas for business education and training, papers that are not necessarily empirical in nature, but describe interesting new educational tools, approaches or solutions.
The book series will include both edited volumes comprised of peer-reviewed articles as authored books. Each volume is dedicated to a specific theme in business education, and will be complemented with articles that can be a resource to advance business education and training.

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Preface

Business education is constantly looking for powerful practices to develop the future leaders, and business enterprises want to help graduates to become true experts. The book series *Advances in Business Education and Training* wants to contribute to this search and foster advancement in the field of business education and training. It is an international forum for scholarly and state-of-the-art research and development into all aspects of business education and training. In this way, the book series is one of the platforms of the Edineb-network (www.edineb.org) which brings together professionals in educational institutions and corporate learning centres, who strive for innovation in developing learning environments.

I am proud to present the present book *Building Learning in a Changing World*, the third in this series. We want to thank all the contributors for presenting a wide range of interesting ideas. We believe strongly that they offer valuable input to further our capabilities in tackling the challenges ahead. I also want to thank the people that are not so visible, but are indispensable for the success of this series: our reviewers. Below, you find the names of the people that worked hard to deliver high-quality feedback to our authors. As you all know, this lays the foundation of an expert performance. Thank you!

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Building Learning Experiences in (and for) a Changing World: An Overview

Piet Van den Bossche, Wim H. Gijselaers and Richard G. Milter

Change is ubiquitous. It has been said and written many times before, it has the danger of becoming a hollow mantra. Almost all introductions in this book refer in one way or another to the fact that the world around us is shifting and that we (at least) need to adapt. And I am sure it will not be the last time this will be written. We will repeat it. Change is here and will not leave us. The question is how organizations can prepare their employees and business schools their students for this reality/future. This implies that we not only need to design learning environments *in* a changing world, but also *for* a changing world. How can we equip our students and employees with the skills to deal with future change, and even more: to make change happen? This book deals with several aspects of the challenge to design learning in and for a changing world.

A first part concerns program development. How to build curricula that are future-proof? Principles to innovate our curricula are identified. It answers the question how we can incorporate the need for change in our thinking about curriculum development and identify the necessary elements to incorporate in our curricula.

The second part focuses on the increasing diversity of students and employees within our schools and organizations, in terms of culture, language, and perception of ability, gifts, and talents. This offers a range of opportunities, but at the same time can possibly jeopardize some processes that are taken for granted. Chapters in this part analyze the processes that play a crucial role in dealing with this diversity, and identify educational practices that can help to harvest the potential that lies within this diversity.

The third section of this book digs further into the possibilities that are opened up by the implementation of ICT-support in our learning environments. E-learning

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provides tools to adapt these environments to the needs of an increasingly diverse student population.

In a last part, we focus specifically on the workplace and how learning can be designed in such a way that employees are equipped for a shifting workplace. On the one hand, it is looked at how training can affect performance in the workplace. Does learning transfer to the work environment? On the other hand, it is questioned how one can design affordances to trigger learning in the workplace.

Chapter Overview

Part I: Program Development in a Changing World

Laughton tackles in his chapter a fundamental concern that has been raised about business education: Does it prepare graduates for their future work? They set out for a quest to make the business curriculum more authentic, engaging, and more relevant to the world of work. This is necessary as, in general, business education has been too slow to respond to the changing conditions and nature of knowledge outside the schools.

Barsky, Catanach, and Rhoades-Catanach build on this need for change that is confronting business curricula. They present a framework that can guide institutions in their change process. They discuss key planning and implementation issues. Moreover, they consider how institutions can manage their change over time.

Semeijn, Semeijn, and Caniels approach the linkage between the business school and the world of organizations from a different perspective. They apply a service-dominated logic to analyze the educational value that is created through different types of business programs. This perspective leads to unique insights in educational programs and their stakeholders.

Also Haggerty and Stone show how the relevance of educational programs can be strengthened. They do so in the context of an MBA program, however their lessons can be transferred to other programs. They sought how they can include learning experiences in their program so that leadership, cross-disciplinary thinking, and soft skills are promoted.

Part II: Dealing with Diversity

Krummenauer and Mueller start from the observation that the increasing diversity is one of the most challenging issues in a globalizing world. Their chapter provides a thought-provoking way to design management education in such a way that students learn how to cooperate worldwide and beyond the frontiers of systems and cultures. Next to a theoretical background, the authors present an example of a program in which these ideas are implemented.

Also Köles and Vörös start from the challenge business and organizations are confronted with; their employees need to work within an increasingly international environment. As a consequence, our business schools have been trying to "internationalize" their curricula. This chapter provides the reader with guidelines and best practices to enhance the students' international awareness and competence.

Rienties, Grohnert, Kommers, Niemantsverdriet, and Nijhuis present the results of a research on the academic and social integration amongst local and international students. In this way, they provide insight in the factual "international" faculty. Also, they provide an interesting perspective in understanding the processes at stake in an international student population.

Franssen and Nijhuis study the problem of student attrition in business schools. This shows how business schools have sometimes difficulties in adapting to the need of the individual students. Their unique contribution is that they focus on the teacher as a valuable stakeholder in identifying attrition. In this way, they identify future pathways to deal with attrition.

Part III: Increasing Flexibility Through Technology

The chapter by Barsky and Catanach uncovers the potential of e-learning technologies for the business education value chain. The educational value chain refers to the set of inter-related activities or processes used by educational institutions to deliver services to their stakeholders. This chapter shows by describing actual examples how e-learning platforms can improve the efficiency and effectivity of the key educational processes.

Myers and Huegler question how instructors can deal with the opportunities technologies offer in such a way that learning is promoted. Specifically, their study considers how communication technologies and various in-class group learning strategies influence learning. Through this contribution, the authors identify the critical benchmark when to implement technology in the classroom: Does it help to build a learning experience?

Tempelaar, Rienties, and Giesbers present a study on a learning environment that was developed to accommodate a heterogeneous inflow of students. The blended learning environment allows students to individualize the learning experience by adjusting the learning tools to their personal preferences. The authors look at how students use this environment and to what aspects they adjust the environment.

Part IV: Learning in a Changing Workplace

Pham, Gijselaers, and Segers present their study on the impact of the perception of the training design and the transfer strategy of the trainees on the transfer of training. In this way, they further insight into the effects of training. This is needed

because we know that organizations devote a great deal of effort to provide training for their employees to cope with a rapidly changing and expanding business world. However, doubt is still raised about the impact of these efforts. This chapter provides insight in factors that are crucial to create training with high impact.

Beausaert, Segers, van der Rijt, and Gijselaers present a literature review on personal development plans as a tool to enhance learning in the workplace. Their aim is to provide insight in the effects of these tools and the conditions under which they are effective. They have special attention for the range of goals for which these personal development plans are used.

Do organizations know what they know? The chapter by Carbonell, Rienties, and Van den Bossche tackles this question by means of the concept of transactive memory systems. They study the factors that influence the retrieval of knowledge in organizational teams. Their analysis produces insights that may impact the management of knowledge in organizations.

Part I
Program Development in a Changing World

What Type of Knowledge Is Required in the Business Curriculum? Pedagogic and Curriculum Response to the "New Knowledge"

David Laughton

Introduction

One of the most common complaints concerning university education is that it does not prepare graduates adequately for the world of work. This is, of course, a view that comes foremost from employers themselves (see, for example, a recent survey by Archer and Davidson 2008), although it is also a perspective accepted by the UK Government (Department for Innovation, Universities and Skills 2008). Such criticism has produced genuine soul-searching within the academy, particularly in relation to postgraduate management education (e.g. Mintzberg 2005), although the Employability "movement" in the UK (e.g. Knight and Yorke 2003) has a focus on undergraduate business education. The outcomes of this process of genuflection, however, have been mixed at best in terms of impact upon the business curriculum generally. There is certainly evidence of a greater emphasis upon skills development, of the introduction of Personal Development Planning, internships/work-based learning (WBL) and a greater interest in career management skills. However, there continues to be a heavy emphasis on disciplinary-based and propositional knowledge in the design of business programmes, and often little attempt to incorporate trans-disciplinary and integrated perspectives.

This chapter argues that one of the key criticisms of contemporary business education relates to its approach to knowledge construction, and the prioritising and privileging of disciplinary-based propositional knowledge in the core curriculum. It is suggested that, in general, business education has been slow to respond to the changing conditions and nature of knowledge creation outside of the academy, and it is posited that a recognition of this "new knowledge" is crucial when developing the skills and attributes identified as being important in the workplace. It is further argued that, although project-based learning and WBL opportunities should be

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expanded within the higher education (HE) curriculum as a way of making learning more relevant to the business world, of equal importance is how this knowledge is fused with disciplinary-based propositional knowledge within the majority of modules or educational experiences a student is exposed to. In grappling with this issue, business educators have the possibility of re-making the business curriculum to make it more authentic, more engaging and more relevant to the world of organisations and businesses.

By way of illustration, the findings of a small scale research project examining student learning from a "live" company project will be examined. The learning outcomes of this project will be evaluated from a knowledge perspective, and the ways in which these could be leveraged across the broader curriculum discussed. A typology of leveraging approaches is formulated. It is concluded that by incorporating authentic learning approaches more extensively within the curriculum, which expose students to or enable them to develop aspects of the "new knowledge", and then leveraging these broadly across the curriculum, business educators can forge a knowledge synthesis and support skills development that will go some way to bridging the expectations gap between universities and business.

Setting the Context

Askling et al. (2001) detect a historical change in the characteristics of university curricula in the contemporary period, suggesting a transformation in the underpinning epistemology of degrees from single to inter/multidisciplinary perspectives and domain-based studies. Progressive educators welcome such a shift, but the extent to which this is changing the student experience at the chalk face is perhaps overstated (Currie and Tempest 2008). *What is taught* and *how it is taught* continue to be criticised for their usefulness in preparing learners for the demands of twenty-first century organisations. Van den Bosch (2008) reviews the major criticisms of contemporary business education using Mintzberg's now (in)famous conclusion that "conventional MBA programmes train the wrong people in the wrong ways with the wrong consequences" (p. 193). In terms of the middle of these criticisms, attention is drawn to the "functionalisation" of the business curriculum, the casualty being insufficient attention placed on the need for curriculum integration and an associated fragmentation of knowledge. Bennis and O'Toole (2005) are critical of the ways in which business education is influenced significantly by the expertise, affiliations, aspirations and interests of academic staff, which may be at odds with what might be termed a business interested and focused curriculum. Hagen (2008) suggests that much management education is outmoded due to its adoption of a narrow curriculum founded upon a dominant organisational form, incorporating bureaucratic and hierarchical approaches to management and based upon instrumental rationality. Pfeffer and Fong (2002) investigate why participants in MBA programmes do not prioritise or appear to value high academic achievement. They identify a number

of contributing factors: a disjuncture between the business curriculum and learning how to manage; teaching approaches not relevant to support the development of management skills; and no direct link between educational achievement, salary and promotion/career progression. And Currie and Tempest (2008) report on the "transmission" approach to knowledge which characterises much of contemporary business education.

These comments have turned attention to ways in which the business curriculum is determined, influenced and reproduced. In the context of undergraduate business education in the UK, Macfarlane has highlighted and analysed the key role of university academics. He suggests that degrees in business studies have developed relatively free from external demands and, surprisingly perhaps, without substantial involvement from employers, and concludes that:

> There appears to be a gap between the essentially academic orientation of staff and the expectations of institutions looking to business faculty to lead an enterprise culture. (Macfarlane 1994, p. 4)

He notes the absence of a strong business studies culture within universities, suggesting that the subject area tended to be introduced through established departments which may have emphasised their own disciplinary base. These disciplines may orient themselves in either a pure or applied direction depending on their structures of knowledge and intellectual traditions. Where disciplines emphasise pursuit of knowledge for its own sake, business studies is perceived to sit uncomfortably within an academic culture that identifies itself with "pure" rather than "applied" approaches, even though students tend to define the subject pragmatically as a study "for" rather than "of" business. His overall conclusion is that most business studies lecturers are recruited from mature disciplines, and that there are relatively few with practitioner-based backgrounds, which has implications for the approaches of lecturers to both epistemology and pedagogy (Macfarlane 1998). This situation becomes problematical due to the recognition of the different characteristics of knowledge generated in the academy and the workplace, and provides an insight into why employers often criticise the business curriculum and the lack of preparedness of business graduates for the world of work.

The "New Knowledge" and the Business World

Gibbons et al. (1994) chart the development and characteristics of a new form of knowledge and new processes of knowledge generation they feel permeate the contemporary period. They label this new form of knowledge as Mode 2, compared with traditional Mode 1 knowledge. They summarise the differences as follows:

> In Mode 1 problems are set and solved in a context governed by the, largely academic, interests of a specific community. By contrast, Mode 2 knowledge is carried out in a context

> of application. Mode 1 is disciplinary while Mode 2 is transdisciplinary. Mode 1 is characterised by homogeneity, Mode 2 by heterogeneity. Organisationally, Mode 1 is hierarchical and tends to preserve its form, while Mode 2 is more heterarchical and transient. Each employs a different type of quality control. In comparison with Mode 1, Mode 2 is more socially accountable and reflexive. It includes a wider, more temporary and heterogeneous set of practitioners, collaborating on a problem defined in a specific and localised context. (Gibbons et al. 1994, p. 3)

Mode 1 knowledge is rooted in a Newtonian view of scientific knowledge practices and the aspiration to leverage this approach across broader fields of inquiry, using the universities and the process of peer review as the chief mechanisms of quality assurance. In contrast, Mode 2 knowledge involves problem identification and solution as practices generated in context, understood and pursued via a fusion of disciplinary perspectives (i.e. through the creation of transdisciplinary understandings) and processes, with communication and dissemination through the agents involved based upon their participation. The production of Mode 1 knowledge is seen as being primarily in the universities and government research labs; for Mode 2 knowledge, a wider variety of agents are involved (research departments in private firms, consultancies, specialised research companies, research centres and research groups in universities) connected through a network architecture. The result of this is that the location of Mode 2 knowledge generation is "socially distributed".

The drivers for a move to Mode 2 knowledge generation are associated with the move to post-industrial societies, globalization, the increasing costs and complexity of technology and increasing demands placed on firms and governments by society in terms of providing solutions to problems and issues that affect general welfare. As constituting forces in the business environment of organisations, they command a response in terms of both efficiency and effectiveness and a changing paradigm of production (Ruigrok and Van Tulder 1995). In summary, the new economics of production are characterised by a move from the pursuit of economies of scale to the pursuit of economies of scope. This has important implications for the kinds of skills and attributes which are bundled into defined role and job requirements in modern organisations:

> Important kinds of knowledge are being produced not so much by scientists, or technologists or industrialists, as by symbolic analysts, people who work with the symbols, concepts, theories, models, data, produced by others in diverse locations and who configure them into new combinations. (Gibbons et al. 1994, p. 84)

Although the main thesis of Gibbons et al. focuses on scientific knowledge development, they also suggest that the move to Mode 2 knowledge production is observable, relevant and valid in a humanities and social science context.

Universities have long been exhorted to move beyond the "ivory tower" position that some say they inhabit within society, to consider the needs and interests of a wider group of stakeholders than those that exist purely within the higher education system. A response of many universities has been to engage in a form of technology transfer, where they attempt to apply the knowledge they have created in-house to organisational and societal problems, thereby demonstrating

a direct contribution to societal welfare. However, this has not, until recently, interrupted or removed their key focus on Mode 1 knowledge creation; rather this encouraged universities to pursue avenues for the application of such knowledge. In Mode 2 the nature of knowledge transfer is perceived differently, indeed the use of such terminology detracts from the fundamental shift in process: industry and HE are now participants in the process of the production of knowledge, working within a symbiotic relationship that generates qualitatively different forms of knowledge.

The idea of a new knowledge, more relevant to business and organisational needs, created in response to their concerns and involving their role and participation in its generation, is also reflected in the growth of interest in organisational learning, work-based learning and the importance of tacit knowledge within organisations. This is a different understanding of "new knowledge" compared to Gibbons et al., but equally it is an understanding which identifies a departure in terms of the creators of knowledge, its characteristics, the purposes of knowledge and the sites of knowledge creation. Brennan (2005), for example, suggests that this "new knowledge" is high in use value for organisations, is constructed and utilised within the workplace, is the outcome of collaborative work within organisations and participation in outside networks, and consequently "…the workplace itself is seen as a site of learning, knowledge and knowledge production" (Brennan 2005, p. 7, 8). The importance of this "new knowledge" to organisations is exemplified by the resources and energies they are willing to apply to its production. Margaryan (2008), for example, reviews the development and implementation of a model for technology-enhanced WBL implemented within Shell EP Netherlands. Ultimately, this represents a new epistemology based upon an eclectic combination of viewpoints in educational philosophy. Contributing streams of thought are varied here. They include those writing in the constructivist tradition (e.g. Bruner and Piaget), who see knowledge as being constructed by individuals based on the experiencing, interpretation and (re)articulation of phenomena/stimuli, as opposed to learning being simply the process of the storing and reproduction of knowledge, i.e. individuals are characterised as active agents in the creation of knowledge. The work of Vigotsky and the notion of activity theory are also referenced in this context, which emphasises the social dimensions of knowledge creation and the thesis that cognition is always localised in specific social and cultural practices. And the work of those who promulgate the notion of situated learning/cognition (e.g. Lave and Wenger) is also drawn upon, where learning occurs as a result of participating in specific communities of practice.

Business educators have responded to this recognition of the different characteristics of knowledge in the academy and the workplace by innovating the pedagogy of business education via implementing problem and inquiry-based approaches and incorporating WBL into the business curriculum. These approaches have the avowed intentions of fostering a greater degree of interaction between theory and practice, and generating the knowledge and skills valued by organisations when they employ graduates. In this context, Van den Bosch (2008, p. 201) identifies a number of "implementation levels":

Levels	Explanation
Theory-based or discipline-based	Students study conceptual, theoretical and methodical knowledge, through which they become familiar with the disciplines. No additional arrangements are offered
Case-based	Students study styled and generalized specimens of situations in practice. They learn generalized methods to solve built-in problems
Task-based or problem-based	Learning sequences use style problems as a starting point. Students define a problem and subsequently collect relevant (scientific) information to analyse and conceptualise the problem
Inquiry-based	Students carry out research (theoretical and empirical) to increase their knowledge about a problem that is usually defined with the context of the educational institution and for purposes of scientific development
Practice-based or project-based	Students participate in (research) projects, which aim to clarify realistic business problems. They usually work together with the owners of the problem

With respect to project-based pedagogy and the link with Mode 2 knowledge generation, one progressive approach that has gained currency in HE institutions is the Alborg model. The product of Alborg University, established in Denmark in 1974, this emphasises problem-oriented and project-based learning, using group projects with industry and a "democratic learning model". Projects incorporate elements of analysing problems, designing solutions, implementing solutions where possible and testing for outcomes. This model is seen as a direct pedagogic response to the challenges of acquainting students with the new knowledge and its generative processes, and as a way of preparing students for vocational roles in modern organisations.

There is now a wide evidence base (see, for example, Ball 1995, Winn 1995, Laughton and Ottewill 1999) which suggests that the approaches above can act as powerful learning opportunities for students—exposed to the "new knowledge" and its associated generative processes—to "bridge the gap" between education and the workplace. By way of illustration, the case study below describes the learning outcomes students experienced as a result of participating in a company-based project as part of their course.

Case Study

Students, as part of the MSc International Business and Management programme at Sheffield Business School, Sheffield Hallam University, UK, engage in a "live" group project, working with a local company on a specified business problem. The purpose of this module is to expose students to authentic business problems in context, to experience the negotiation of a brief as a project team, to encourage reflection on the theory–practice nexus and to develop commercial awareness based upon

a review of the WBL experience. A further objective is to expose students to a process of knowledge generation and development outside of their discipline-based university education, which mirrors to a large extent the processes of knowledge creation described in the Mode 2 and "new knowledge" literatures.

In semester one of the academic year 2007–2008 four students formed a group to work with a local Sheffield company that produced labels for the steel industry, chemical industry, gardening industry and drinks industry, amongst other sectors. The company is a small and medium enterprise (SME), employing at the time approximately 50 workers, and was a family owned firm. The company was interested in the following:

1. A review of the company website and its effectiveness in new business development, sustaining company profile and customer support
2. A review of current good-practice in e-marketing which could be used to benchmark current organisational practices
3. An evaluation of the effectiveness of PR through trade journals and recommendations to increase the effective use of trade journals in the context of the development of the company's marketing strategy

The students visited the company on a number of occasions, were provided with company and industry information and data and given access to the company's website and a director. Review meetings with the company provided students with feedback on work in progress, and a final presentation and written report were made available to the company director who was also the company lead for the project. Before the commencement of the project, the students in the group (four in total, one student from India, one from Kenya, one from Thailand and one English-Chinese were asked to identify their personal objectives and the learning they felt they would gain from the project although the latter was not asked to engage in the reflective exercise as he was an undergraduate student drafted into the project team due to his web skills and expertise). Aspects identified, distilled from an analysis of structured interviews with students before they engaged with the project, were:

- Gain work experience
- Knowledge about the industry sector
- Knowledge of the UK business environment
- Knowledge on the role and use of trade journals in business
- Knowledge of B2B marketing
- Development of consultancy skills
- Development of cross-cultural communication and teamwork skills
- Report writing skills
- Research and analytical skills
- Project and time management skills
- Knowing the company from an insider point of view
- Ability to work under pressure
- Practical knowledge from a real life business project
- Improving my resume

Interestingly, the students commented upon a mixture of knowledge, skills and attributes they were hoping to develop further via participation in the project which are difficult to facilitate in the traditional university classroom environment. At this early stage this identified the powerful nature of problem, inquiry and employer-based projects for the learning of business students. Of particular note are the knowledge-based outcomes students were hoping to achieve for themselves (e.g. knowledge on the role and use of trade journals in business, knowing the company from an insider point of view, practical knowledge from a real-life business project) which would be the outcome of producing new knowledge for the company. In terms of process, the students involved themselves in conversations with senior managers of the organisation, in a tour and explanation of production processes and technology used in the plant, identifying and obtaining relevant company marketing documentation, obtaining access to and evaluating the company website, obtaining relevant trade journals, in telephone interviews with sub-editors and marketing/sales staff of trade journals, identifying relevant academic studies and research from the university learning centre and acquiring knowledge, guidance and support from the supervising tutor. In addition, they drew upon their existing skills and knowledge to produce a summary report and recommendations for the company after "making sense" (Weik 1995) of the issues the company was interested in as reflected in the terms of reference for the project.

The outcomes of the project were reflected upon by the company and the students with respect to their different interests and motivations. These were then evaluated by the author. The company perspective was derived from verbal feedback to the academic supervisor provided by the company director who had been involved with the project. This was highly positive, in that the recommendations produced by the students in relation to website design/review and marketing of company products in trade journals were to be acted upon by the company, i.e. had the potential to create value for the company. Indeed, the company expressed an interest in employing one of the students to implement some of the recommendations. The students were asked to reflect on their experience in relation to their initial statement of personal objectives and the learning they had experienced. These interviews were taped and transcribed. Summary reflections on personal objectives are reported in the Appendix. The analysis of student reflections presents a range of experiences in terms of learning derived through participation in the project and personal objectives fulfilled and unfulfilled. A number of observations/findings are pertinent in the context of the aims of this chapter:

1. Students gained different kinds of business knowledge compared to what they had experienced as part of their university studies through using different knowledge generation processes (see headings "Knowledge about the industry sector", "Knowledge of the UK business environment", "Research and analytical skills" and "Practical knowledge for a real life business project" in the Appendix).
2. Students gained an understanding of the open (as opposed to closed) nature of business issues and problems (see heading "Knowledge of B2B marketing" in the Appendix).

3. Students gained skills valued and useful in the workplace and so developed their work-related capabilities (see headings "Development of consultancy skills", "Report writing skills" and "Project and time management skills" in the Appendix).
4. Working as a project group itself generated important aspects of personal knowledge (see heading "Development of cross-cultural communication and teamwork skills" in the Appendix).

The evaluation of project outcomes from both the company and student perspectives suggests the symbiotic benefits for both the company and the students involved. The evaluation supports the view that problem/inquiry-based projects within a work context can be a powerful pedagogy and help students to develop knowledge, skills and attributes that are highly relevant to contemporary organisations. Furthermore, it provides insight for universities with respect to the kind of knowledge and skills valued by organisations, which presents a challenge to traditional disciplinary-based curricula in the teaching of business. It is to this challenge, and the ways in which the business *curriculum* (as opposed to *pedagogy*) can be influenced and modified, that the discussion will now turn.

Leveraging the Learning from Work-Based Projects—Invigorating the Curriculum

The case findings present a detailed and granular account of the learning (both skills and knowledge) that students achieved as a result of participating in the company project. The conclusions support the viewpoint (e.g. CBI/Universities UK 2009) that WBL (in its many forms) is something that universities should be engaging with as a way of supporting the business capability of students. However, there is a danger here that universities simply adopt a "bolt on" approach to WBL, perceiving this as a panacea, rather than exploiting this in a more creative way to respond to the criticisms of business education from employers. There are opportunities to leverage the learning from WBL approaches, to inform the business curriculum more generally, and to utilise the knowledge developed in a work-based context to produce a more "business enriched" knowledge base as a platform for student learning. The chief opportunities for curriculum invigoration in this context are described below:

Generating Theory from Practice Often learners are asked to apply theory to practice in WBL situations and reflect on the links. There is evidence that students find this a difficult process to undertake and often alienating in terms of the disjuncture they experience between these two aspects (Little and Harvey 2006); at its starkest students find it impossible to perceive business problems, business issues and business realities in the way their text books describe them. Following the example of grounded theory, there is an opportunity to task learners (via their assignments and reflective accounts of their work-based experiences) with the development of their

own theoretical and conceptual insights by undertaking structured inquiry and sense-making (Weik 1995) whilst engaging with WBL. Given the limited opportunities that may exist to engage in systematic research, such conceptual insights would be provisional, preliminary and formative, but there would be dual benefits from such a task in terms of a deeper understanding of investigative and research processes and the generation of "…mental models, 'propositional knowledge' which enables the creation of new knowledge to solve problems as yet unknown" (Hagen 2008, p. 156).

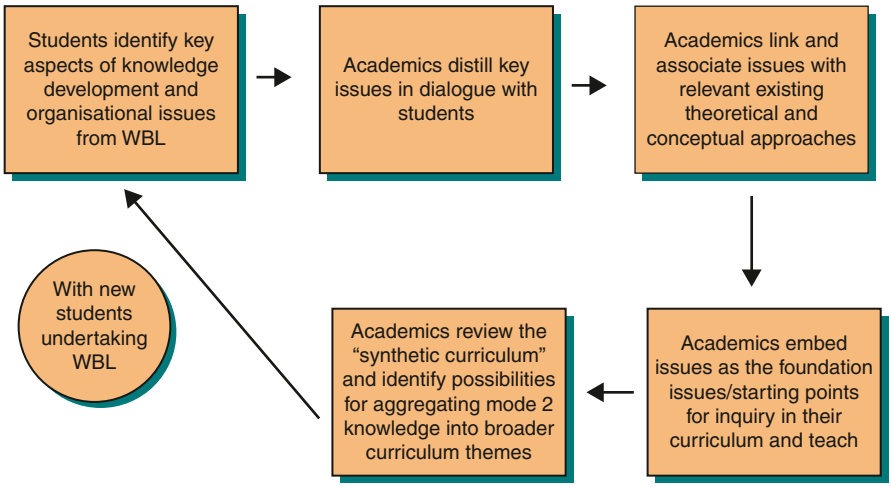
Generating "Live Cases" that Can Be Used in Classroom Learning The case method has attracted considerable criticism in the recent period (see, for example, Mintzberg 2005 and Currie and Tempest 2008). WBL can be leveraged to produce grounded and more realistic cases, which incorporate a genuinely integrative perspective, which can be presented and commented upon reflexively and which reinforce a student centred approach. One way to harness these benefits would be by asking learners who have engaged with WBL to prepare and present a case on a particular curriculum theme (based on their own organisational experience), and to embellish this with "insider responses" as the dialogue within the class develops. This approach offers opportunities to express more than just senior management views of an issue, develop soft as well as hard skills of analysis (e.g. a dialogical approach to knowledge construction and understanding in an organisational context), and re-order power relations in the classroom (i.e. a move away from the teacher as the font of all knowledge, and from the sage on the stage to the guide on the side and the meddler in the middle as a teaching approach).

Using students Who Have Been on WBL to Deliver Class Sessions This is an amalgamation of the two opportunities mentioned above whereby students can deliver learning sessions to their peers on a particular curriculum theme, drawing upon their experiences and the knowledge they generated in an organisational context, with the tutor using this as a knowledge foundation to make links to and synthesise current academic theory and research findings.

Generating a Process Whereby Academics Can Benchmark the Authenticity of What They Are Teaching Bridging the gap between the world of work and the business school curriculum means there needs to be a reflective process undertaken by those with responsibility for curriculum design. The starting point of this process could be an audit or benchmarking exercise, whereby academics use feedback from learners who have engaged in WBL to evaluate the relevance of the topics they teach in terms of importance to contemporary organisations, the realism of what they teach in terms of correspondence with organisational practices and the gaps in the curriculum in terms of what is not being taught. For example, one potential outcome of this process could be that organisations are more interested in the ways in which they can respond to and minimise the impact of the current global economic downturn on their operations compared to an understanding of the macroeconomic causes of economic recessions.

Using WBL Topics and Issues as Foundations of an Ongoing Curriculum Development Process Rather than prioritising and privileging existing theoretical,

propositional and declarative knowledge, the curriculum can evolve from and be sensitised to the knowledge generated in a workplace environment. A stylised process encapsulating the key aspects of such an ongoing curriculum development is outlined below:



Conclusion

This chapter has suggested ways in which universities and business schools can respond to the perceptions of governments and employers that what they teach is not "fit for purpose" in equipping learners with the knowledge and skills they require to contribute successfully to the organisations that employ them. The principal argument is that the knowledge that is generated in the academy needs to mirror and be linked more to that which is both desired and (re)produced in organisations themselves. Problem/inquiry-based approaches to learning within an organisational context, as part of an academic programme of study, are suggested as a powerful pedagogy in this context.

The case study presented finds that students were able to both generate "new knowledge" for the company involved and gain insights into the process of "new knowledge" generation for themselves, as well as develop skills and attributes important in modern organisations. Specifically, they were able to develop different kinds of business knowledge compared to what they had developed previously in a classroom context; had gained an understanding of the "open" nature of business issues/problems, developed work-related skills (e.g. project management) and

aspects of personal knowledge (e.g. cross-cultural communication skills). In this sense it corroborates other studies in this vein (see, for example, Sas 2009, for a recent example), and provides "fuzzy generalizations" (Bassey 1999) which are seen as a specific feature of case study research. It is recognised that this is an exploratory case (Yin 1994) and, therefore, contains strengths and weaknesses that this mode of inquiry incorporates more generally.

Furthermore, the opportunity to leverage the learning and knowledge generation in problem/inquiry WBL contexts to invigorate the curriculum (*in addition* to pedagogy) has been identified. A framework which includes a number of practical ways in which this can be undertaken by those involved in curriculum design has been outlined. Hitherto, WBL has been seen primarily as a way of supporting learners in skills and attribute development. In these ways, problem/inquiry-based learning in an organisational context has a valuable contribution to make to learner development, but business schools should also reflect on how they can incorporate the knowledge-based outcomes associated with this mode of learning to modify their curricula and make them more business relevant.

Suggestions for further research centre on the operationalisation of the approaches to leveraging the learning from work-based projects suggested, and on the impact on the curriculum reviewed from a variety of stakeholder perspectives: students, academics, organisations, the professions. It will be interesting to reflect on the extent to which curricula can be re-designed in this way and the barriers to progress in this context, as well as stakeholder perspectives on the usefulness of this approach in terms of producing a genuinely authentic business curriculum.

Appendix

Reflections on Personal Learning from Participation in a Student Consultancy Project with a Local Company

Personal objective at commencement of consultancy project	Learning outcome/achievement at completion of project
Gain work experience	"It happened in one sort of way. I thought that the consultancy project was working in the firm and the learning process might be different. The work given was more research based so it meant the project can be done at university…overall the experience was different, but good" (student one). "Q. You mentioned you hoped it would enhance your career path by demonstrating practical knowledge from a real life business project which a company prefers from an applicant when they apply for a job rather than just a certificate…A. Yes, I think is true" (student two). "It has been good to work with a company because it gets you prepared when applying for jobs" (student three)

Personal objective at commencement of consultancy project	Learning outcome/achievement at completion of project
Knowledge about the industry sector	"The research in the project is more related to a company's specific goals and how a business operates in a marketing environment; how you need to compete, what factors you need to look at. For example, competitor analysis—I had to look through journals and see how competitors appeared in the magazines and how they conveyed their message across…it was definitely a different way of doing things…In normal research we have a topic in mind and we do a research and read about it. This project would be useful for someone who would like to enter a business or someone who would have liked to enter the same field" (student one). "You have responsibility in something that the company requires. In study work the topics have already been written/talked about, e.g. case studies, which you are working on. In this project, you make something on your own which you can contribute to the business; it's up to them if they accept it or not but you can put your point of view across, which is interesting" (student one)
Knowledge of the UK business environment	"UK businesses are quite direct and focused" (student two). "I think other modules we can base on secondary data and academic stuff. In this project, secondary data is used but we had to think in depth and find the data unlike modules which can be academic stuff which you can defend and argue it. In this project you had to get on with the work and do it effectively, in the real situation" (student two). "In a real situation the business culture is quite different, you can't base it by using academic skills, you have to apply it. It's quite different, to argue and back up your ideas" (student two)
Knowledge on the role and use of trade journals in business	"Quite a lot of knowledge" (student one)
Knowledge of B2B marketing	"In this project we had no limitation to the research we were doing because it was marketing and as much information you can gain from the competitors and what the company should do and more discussion on this, the better" (student one)
Development of consultancy skills	"What I have learnt from the project is understanding the goals for the company, getting the message from the company and keeping good communication with them regularly. I have learnt the importance of keeping good work progress—working towards your goal and the timeline of the project" (student one)

Personal objective at commencement of consultancy project	Learning outcome/achievement at completion of project
Development of cross-cultural communication and teamwork skills	"Communication in a professional way is what we learnt during the process" (student one). "Q. Do you think the experience helped you to develop skills to work with people from other cultures? A. I think in terms of culture, for example, Indian people insist on doing something, you have to adapt but sometimes it's hard but my group mates are not so aggressive so it's quite good" (student two). "This project improved my English skills, conversation, presentation and discussions" (student two). "It's quite different because most of the work we discussed and allocated work. In this project we had to sit, think and sometimes we would have to make changes something even though it was a group effort. Whilst in other modules the process was different: discuss, have a meeting and allocate work" (student two). "One of the students there was a language barrier in a sense, so in the beginning it took time to understand. Eventually, since we were working together you try to understand what they are trying to and yes, it was good" (student three). "Since we were all from different backgrounds, there are things like punctuality, taking breaks—people have different ideas. It has worked out quite well, since we worked together before but not for a long project such as this one, so you get to know each others' strengths and weaknesses" (student three)
Report writing skills	"The project is a big assignment to be presented in a formal way which has given me the experience when dealing with companies that the dealings should be formal. I have learnt a lot about formality in the project to be conveyed in the consultancy project" (student one)
Research and analytical skills	"Q. Do you think the project has developed your research and analytical skills in different ways? A. Yes, I think it did because the kind of research done in the project was different to the research done in the masters programme" (student one). "Some people…may have come from a more academic course. It has been good that there is a different opinion though. Some people have been focused on the academic skills and not used it to applying it and they say that 'they haven't learnt anything at all'" (student two). "Q. Do you think it did improve your research and analytical skills? A. Yes, definitely because once you research something you need to understand why the person said that or why the particular topic was researched on. Through this I found out how to analyse some situations so it has helped me and my dissertation work" (student three)
Project and time management skills	"…in a project like this it's important to make progress regularly. This was done according to the timelines we set, we had to fulfil the project requirements within the timeline and timeline was not enough as we had to meet the demands of (the company director) because she had more things for us to do as well" (student one). "Q. Did you think the project improved your time management skills? A. Yes, but not as I expected because we did not have much pressure" (student two). "…we did develop confidence…we set targets in terms of finishing something, during the project we were better at managing time, but it took time to realise this" (student three)

Personal objective at commencement of consultancy project	Learning outcome/achievement at completion of project
Knowing the company from an insider point of view	"I would say I gained 50% of what I expected, maybe the reason of this is that we were not involved within the company and the many things the company does and all the aspects we would touch if we were working in the company. We were given a particular task which was done externally, meaning that we were not in the firm, which was fine…Since it was a small company they have limited things to do…if it was a bigger company it would have been a different experience for me…if the project duration was longer then I feel I would have got more of an insider point of view" (student one)
Ability to work under pressure	"Yes, I felt the pressure but as much as working on the project—the scope of this project was huge; we had to do a lot of things and so we had to limit ourselves" (student one). "To be honest, there was not much pressure!" (student two). "…I felt we worked well as a group, under pressure since we had other commitments to do" (student three)
Practical knowledge from a real life business project	"If we were not doing this project and was doing it as part of the a master's programme…we would not have done it as efficiently so we took a different approach; professionally, we learnt professionalism. For example, how to talk professionally when you are doing some business, deals, something about their business" (student one). "Communication in a professional way is what we learnt during the process" (student one). "…for the company report we have to be precise and business-like in what we had to say. In assignments you don't have to really, so the difference was that we had to think more thoroughly. This is because I have not done any professional work before so it was difficult and different for me to think in that context" (student three). "The phone interviews we did with the different magazines, those were good as after a few phone calls we knew exactly what to ask for to get the right amount of information…Also in terms of marketing, as when we first approached the magazines as students and that didn't work at all. Then we approached as label manufacturers, they were asking a lot of questions—what did you do, what's in the next editions and future events and exhibitions. The magazine people even asked for our e-mail address which was good" (student three)
Improving my resume	"For employers to see this…this project has added value to my CV" (student one). "Yes, I think is true" (student two). "I got to know more on how to interact in business terms, basically. To form objectives, what questions to ask and what specific work you need to do—to build my resume in a way, to be specific not 'beating around the bush'" (student three). "…team working as the project was done in a short period of time and also working under pressure. These are some of the things I would mention, as I felt we worked well as a group, under pressure since we had other commitments to do. These things I could put on my CV as it went well" (student three)

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Managing Classroom Innovation: A Primer for Substantive and Lasting Curriculum Change

Noah P. Barsky, Anthony H. Catanach Jr. and Shelley C. Rhoades-Catanach

Introduction

During the last twenty years, a variety of constituencies have called upon business schools to revise their curricula and teaching methods to meet the challenges of today's global business environment. While the literature is replete with innovative and useful cases, techniques, tools, and structures that offer significant potential, faculty remain reluctant to consider classroom change. One reason is their feeling of unpreparedness to face this potentially daunting task. Many colleagues are unsure of what pedagogical changes are needed, and unclear as to how to execute the change process itself. This chapter's primary focus is not theoretical in nature, although it does briefly discuss organizational change theory to provide some context for its recommendations. Instead, the chapter is a combination of framed experience, contextual discussion, and pedagogical insights that provide a framework for business educators seeking to implement meaningful curriculum change. The first section of the chapter reviews the environmental forces motivating classroom change in business education today. These factors not only encourage change, they also drive goal setting and expected outcomes. Next, the chapter links the organizational change literature to the curriculum revision process. Then, it details specific planning issues to consider in preparing for pedagogical change. This is followed by a discussion of specific implementation issues associated with actually executing the change using a recent classroom innovation as an example. The chapter then discusses whether faculty should create their own materials or use someone else's (i.e., the "make or buy" decision), including the advantages and disadvantages of each alternative. The chapter also presents general guidelines for assessing the success or failure of curriculum change efforts. It concludes by providing a checklist that facilitates reengineering, and prevents "unintended consequences" similar to those reported by Carr and Matthews (2004).

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Environmental Forces

In their discussion of an accounting education crisis, Albrecht and Sack (2000, p. 60) noted that no one educational model exists that all schools should adopt. In fact, they specifically indicated that "each department must decide for themselves what their response will be" to the challenges facing business education today. Consequently, faculty must carefully evaluate the reasons for change, since they ultimately affect the nature, extent, and success of any curriculum revision pursued. This section reviews several major forces motivating classroom innovation in business schools today.

The "Perfect Storm" of Market Forces

According to the Management Education Task Force of the AACSB (AACSB 2002), competition is increasing globally in the business education market. Traditional university-based business schools now find themselves struggling to differentiate their product from for-profit institutions, executive development centers, consultants, company-based training centers, and corporate universities. The task force also cited recurring shortages of new business PhDs as threats to both scholarly research and teaching. More recently, a decline in traditional sources of financial support has forced business schools to explore new revenue streams to fund escalating operating costs.

Market forces are particularly severe for European business schools. Funding is a major challenge because most European universities are largely state-funded, lacking the diversified funding from student fees, corporations, and donors common to US institutions. Faculty shortages also are urgent in Europe, where salary levels are often not competitive with those offered in the USA (Cornuel 2007).

The European Union's Commission Communication on Europe's Universities (European Commission 2005) has focused on programs to improve the performance and quality of, and access to, higher education in the EU. Its efforts both complement and fuel ongoing debate over needed changes in European business education. In addressing this debate, Cornuel (2007) argues that "the successful business schools of the future will need…an adequate level of resources…, adequately funded doctoral research programmes…, will need to globalize their faculty and student body (and) also their curricula…" (p. 87). These success factors apply to business schools on both sides of the Atlantic.

Barsky et al. (2007) argue that such factors as well as rising tuition pressures and more rigorous accreditation standards are forcing institutions to make key educational processes more effective and efficient. They propose adopting an "educational value chain" perspective to think about service delivery in the business school. The strength of their pedagogical value chain is its implicit requirement that those processes key to delivering a product/service are considered, analyzed,

and managed in an integrated fashion. Consequently, understanding an institution's educational value chain is critical to any curriculum change that hopes to address today's market forces.

The Role of Technology

Incredible advances in computer technology have changed both the educational process and the market's valuation of services. Markets no longer reward for data aggregation and manipulation, instead expecting insightful analyses useful for decision-making (Barsky and Catanach 2001a). Access to personal computers has dramatically changed *how* students manipulate data and the availability of financial data over the Internet has changed the *type* of data students routinely access and use. In fact, with a variety of tutorials readily available over the Internet and on compact disks, it becomes more difficult to justify devoting precious classroom time to teaching business fundamentals. The Internet also offers distance-learning options with significant implications for curriculum revision. Cell phones, e-mail, and personal data assistants (PDAs) all have changed the manner in which students communicate and interact with each other and their faculty. Finally, the continued development of e-business requires development of new curriculum content as well as the integration of existing topical coverage across disciplines. Clearly, technological factors impact faculty decisions on what students should learn and how they should learn it.

The Effect of Student Demographics

Understanding student demographics can increase the likelihood of success in any curriculum innovation. It is essential to "know" the students your institution targets and understand both student and parent expectations. Faculty must determine if these parties will "appreciate" the curriculum change that is being planned, as well as the value that it adds to the educational process. Specific factors to consider include the students' socio-economic backgrounds, hours of student employment during college, family educational background, admissions quality measures (e.g., standardized test scores, grade point averages (GPA), etc.), and technological proficiency. This data often can provide insights into student educational goals, career interests, definition of success, and tolerance for course rigor. Do your students expect to double major, intern, or study abroad? Are they looking simply for a job after graduation, or are they focused on a professional career? In short, will the planned curriculum change support or inhibit student and parent expectations? Knowledge of these initial attitudes and expectations provides a starting point on which a successful curriculum can be built (Barsky and Catanach 2001b).

Institutional Considerations

Factors within each college or university also must be considered in planning and implementing curriculum change. McGann et al. (2007, p. 51) report how failing to consider the severity of enrollment declines affected resource availability for their curriculum change. Nelson et al. (1998) cite the importance of recognizing the goals of the university, college, and department. Are top administrators, including the dean and department chair, supportive of change? Is change being mandated by the university/college strategic plan or by accreditation? In many universities, marketing or "branding" efforts may focus on the use of technology, cross-functional curriculum offerings, or other distinctive educational features. Administrators may view curriculum changes that enhance these branding efforts as desirable. Administrator incentives, personal aspirations, and the overall political climate of the university can also impact support (monetary and non-monetary, long-term and short-term) for curriculum change.

Faculty attitudes toward pedagogical reform must be assessed to avoid pitfalls and traps along the road to lasting classroom change. McGann et al. (2007, p. 51) note the difficulty in achieving consensus on problem causes related to curriculum reform. Some faculty may question the need for change, while others may be unwilling to commit the time and effort needed for meaningful change. Some faculty may be looking for new challenges and view curriculum change as a means to alleviate boredom with classroom routine. Many are unwilling or unable to resist the calls for change if supported by their dean, department chair, and the overall university political environment. However, prior experience with curriculum change that was poorly executed, temporary, or not meaningful could dampen enthusiasm of senior colleagues for future endeavors. An overall concern for student learning usually will enhance most faculty members' willingness to participate in curriculum change efforts.

Summary

In light of these market forces and others, it is becoming increasingly difficult for many business school curricula to support the status quo. Educators now find themselves at a "tipping point" that requires them to deal with the forces driving change at their institutions. Stumpf (2006) describes one institution's experience with just such a "tipping point," and the resulting value change adjustment. *Why* a particular change is being considered will directly impact what, how, and who will change and the ultimate success of the change. What are the goals that the change aims to achieve and are they realistic and tractable? Will the change affect one class, one course, other departments, and/or the overall curriculum? Over what time horizon will the change occur? How will the change be evaluated? All of these questions should be considered before beginning reengineering of the educational value chain.

Background Literature

Like any significant organizational change, curriculum innovation requires active management of the change process to maximize success. Significant change often makes a radical impact on an organization, that is permanent, pervasive, and transformational (Roach and Bednar 1997; Carr 2000). Palvia and Chervany (1995), in their change management research identify three phases of organizational change: *unfreezing, moving,* and *refreezing*. *Unfreezing* permits the recognition of potential opportunities and benefits that can be gained from the change. The *moving* phase involves actual development activities to implement change. *Refreezing* attempts to support and reinforce the change as a proper fit within the organization.

Change may involve confrontations, tensions, negotiations, and opposition. However, there are also possibilities for win–win scenarios (Carr 2000). Initial changes can spark a chain reaction of change. The goal of the change transformation is to alter basic assumptions currently held by the organization, in favor of altered versions that leadership has deemed worthy (Roach and Bednar 1997).

Conner (1993) argues that the more people understand about a change, the more committed they typically become to it. He asserts that such understanding gives people a sense of control over the change, contributing to their sense of comfort and security and lessening their resistance to the change. Lick (2000) translates such understanding into a simple change management principle: learning must precede change.

Successful and lasting change depends on more than understanding and commitment. Chrusciel and Field (2006) identify the following critical success factors for organizational change: (1) planning and analysis, (2) assessment, (3) comprehensive communication, and (4) perception of organizational readiness to deal with change. Planning and analysis include an evaluation of the gap between where the organization is currently and where it would like to be. Also included in this success factor is management of the entire change process and perception of the fairness of the process by the members of the organization. Assessment involves the evaluation of the effectiveness of the change, to provide feedback on its success. Communicating the change message at all levels of the organization is critical to success. Finally, personnel perceptions of organizational readiness to deal with change may either facilitate or undermine a successful effort.

In educational settings, a number of authors have identified critical success factors for curricular change. In an engineering context, Plattner (2004) cites as the main driver for success the capability of the institution to attract the right people, including excellent faculty, support staff, and students. He also identifies stable funding, first-class infrastructure, and a flexible and supportive administration as important contributors to success. Other valuable factors include quality of learning and teaching, global recruiting, and a positive feedback loop within the system. In addressing successful implementations of integrated curriculum changes, Pharr (2000) cites as critical factors faculty and administrator attitudes, cross-functional expertise among the faculty, reward structures, mission and objectives of the school, time, teaching loads, and financial resources.

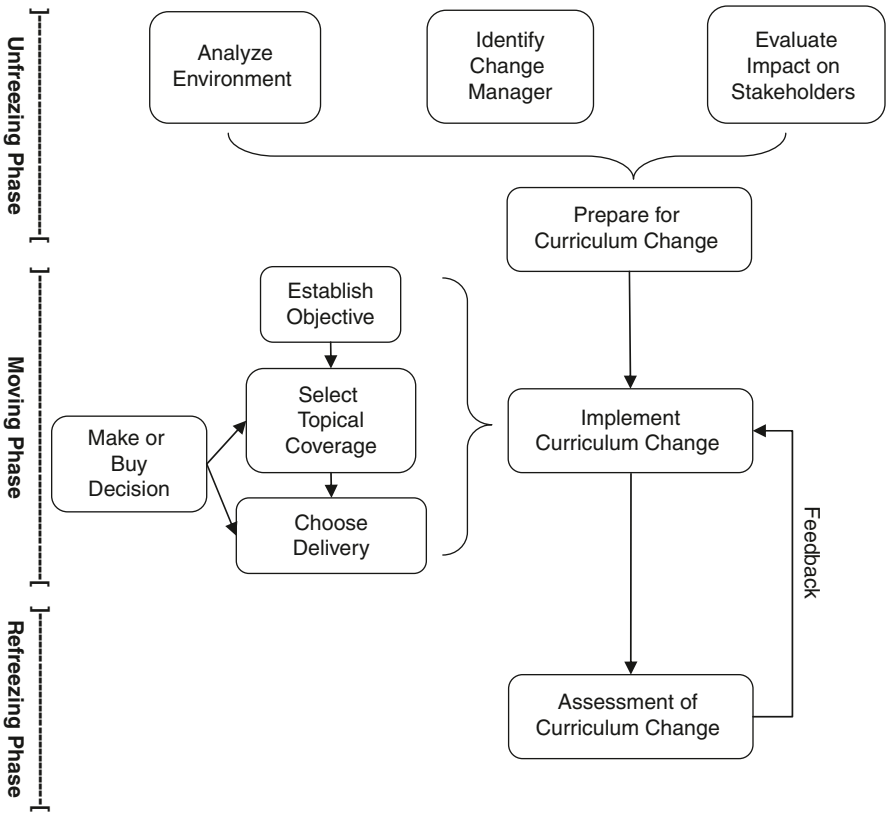

Fig. 1 Curriculum revision process

The remainder of this chapter presents practical guidance for planning and implementing curriculum change. It relates our experiences and examples to Palvia and Chervany's (1995) three phases of organizational change, and addresses many of the critical success factors discussed above. Our recommendations are summarized in the flowchart presented at Fig. 1.

Preparing for Curriculum Change

Once faculty have completed an environmental or market analysis and are convinced that curriculum change is indeed necessary, several key planning issues must be addressed before actually beginning any curriculum revision: (1) identify the appropriate faculty to champion, organize, and execute the change, and (2) anticipate the impact of the change on students, faculty, and other parties within the institu-

tion. These actions are part of the *unfreezing* phase of the change process, and help to address the planning and analysis of critical success factors.

Selecting the "Right" Change Manager

The choice of faculty to spearhead the change process is critical to successful curriculum change. McGann et al. (2007, p. 54) report that this leader or moderator can be invaluable in helping assure that the "overhaul" process and its related strategy are set before course-level issues are addressed. The right personnel choice may not necessarily be the best teacher, best researcher, or even the person who wants the task. The best teacher, in a traditional curriculum, may be a lecturer who might not adapt well to the Socratic learning style used in so many innovative curriculum approaches. The best researcher may place less emphasis on classroom activities, and prefer not to invest the time needed for curriculum innovation. Finally, the person who appears most eager to assume the task may have his or her own personal agenda that may not be compatible with the goals driving the curriculum revision decision. In some cases, the best person to lead the effort may not be a current faculty member, but someone recruited for their prior experience with curriculum innovation.

Ideally, the person selected to lead the revision process should be highly motivated, enthusiastic, and organized, with a track record of success in teaching, research and/or service activities. This person's abilities and training should be appropriate to the project. Creditable business experience also will enhance the faculty member's ability to connect with professionals that can serve as consultants during the design process. The faculty member should be well respected by colleagues as a good teacher, and have sufficient political connections within the college and university to solicit support and resources. The project leader must have the ability to motivate and build consensus and cooperation, yet also have sufficient strength of character to deal with adversities that will arise during implementation. The faculty member selected should approach the project with a scholarly attitude and a willingness to subject the work to critical review. In particular, the leader must be willing to share both implementation successes and failures with other colleagues and be willing to adjust curriculum change plans based on any feedback received.

Finally, faculty members chosen to lead the change process must be willing, and doing so must be in their best interests. Is assuming this project fair to the person selected? Is this person working toward tenure and/or promotion? How will participation in curriculum change impact these types of evaluations? For untenured faculty, involvement in major curriculum change will likely reduce research productivity. Is this person's research pipeline sufficiently developed to meet future tenure expectations? What other teaching and/or service demands have already been placed on this faculty member? If this person is involved in other curriculum change initiatives or has had recent changes in teaching load or new course preparations, his or her enthusiasm for another new project may be impaired.

Impact of Change on Interested Parties

Once faculty agree to participate in the change process, they should carefully consider who will be affected (both directly and indirectly) by any proposed change. These considerations are part of planning and analysis, but also incorporate two additional critical success factors: comprehensive communication and the perception of organizational readiness to deal with change. For example, any pedagogical change should address potential student reactions to the revised course(s). McGann et al. (2007, p. 55) report on the role of student perceptions in the redesign and integration of two information system core courses. It may be necessary to market the change to current students, making explicit both the need for change, as well as benefits the students will receive from the new curriculum. This may be particularly true if previous demographic analysis suggests that students are predisposed "against" curriculum change (e.g., prefer lectures and note-taking to case studies and critical thinking exercises). Practicing professionals who understand and support the curriculum innovation can be very helpful in reinforcing this message to students and other stakeholders (Barsky and Catanach 2001b). Frequently, new innovative curricula create new rigor that can be challenging for students to master. Student reactions will depend on their perceptions of course rigor relative to past, present, and future courses in the curriculum, and their willingness to commit time and effort to mastering the material (Fogarty et al. 1998). Acceptance of the change also may depend on what majors students select, as well as time burdens imposed by double majors, internships, study abroad programs, extracurricular activities, and part-time employment commitments (American Council on Education 1999). Students also may be sensitive to the potential impact of the new course(s) on their GPA, given its effect on scholarship qualifications and job placements. Balancing curriculum rigor with student needs will increase the likelihood of program success and longevity.

Faculty involved in the design and implementation of the innovation also may have their own concerns about its impact. Many faculty are sensitive to the potential impact that a curriculum change may have on their course evaluations. For example, if the change includes a switch from traditional lecture format to Socratic teaching methods, students may rate faculty *lower* on certain evaluation dimensions, arguing that the faculty don't really "teach" (meaning lecture) (Smith 2001). This can be a particularly sensitive issue given the traditional role of teaching evaluations in faculty performance reviews and related merit raises. Consequently, administrators must account for innovation-related "measurement error" when using these metrics for performance evaluation purposes.

Faculty also may need training in new skills (e.g., technology, case method delivery, etc.) to effectively implement curriculum change. Therefore, curriculum reengineering offers an excellent opportunity for faculty development. Arrangements should be made for this training to occur during the planning stages or earlier.

Faculty often disagree on a number of fundamental pedagogical issues that must be addressed during the planning phase. For example, faculty should develop consensus on such issues as: (1) scope of change, (2) level of rigor, (3) delivery

methods (e.g., group learning, teaching methods, etc.) (Gabriel and Hirsch 1992), (4) testing methods, and (5) role of technology (Gujarathi and McQuade 1998). Only after such issues have been discussed and resolved can reasonable decisions be made regarding the detailed topical content of the innovation.

Curriculum change impacts not only the students and faculty involved in the revised course(s), but also potentially other courses in the business school. A new course may affect the content, sequencing, and delivery method of existing and retained courses. For example, the finance department could be impacted to the extent that a revised course in the accounting department teaches net present value and financial statement analysis. At the college and university level, the changes could impact class scheduling and marketing of programs that include the revised course(s).

Finally, the impact of the change on accreditation and professional licensing cannot be ignored. Increasingly, business schools are considering replacing traditional introductory accounting and finance classes with some type of integrated, team taught, business process curricula. While conceptually appealing, administrators and faculty must address how state licensing boards of accountants will react to this new program of study. Specifically, will these regulatory bodies give accounting majors credit for courses that no longer appear to be strictly accounting classes?

Implementing Curriculum Change

Given the many planning issues discussed thus far, one begins to wonder how (and even if) successful curriculum change can be executed. When the planning phase is completed, what follows? Next, objectives must be formalized from previously established pedagogical goals. Then, topical content, consistent with the educational objectives, must be determined. Finally, delivery and testing issues must be addressed. These steps are part of the *moving phase* of organizational change, and incorporate critical success factors related to management of the change process. To illustrate how these steps are carried out in the implementation of curriculum change, we use our experiences in the adoption of a recent curriculum innovation at a large private university located in the Northeastern United States: the Business Planning Model (Barsky and Catanach 2005).

Establishing Educational Objectives

Faculty must be very clear about the goals of the desired curriculum change so that appropriate educational objectives can be established to affect desired outcomes. Setting curriculum objectives is more complex than simply adopting the teaching objectives set forth in textbook prefaces and chapter introductions; educational objectives encompass much more than topical course content (Bonner 1999). It is

particularly important that objectives be observable and measurable, not simply esoteric platitudes. Once the innovation's objectives are stated, faculty must decide how students will be evaluated to determine if the objectives have been met (Herring and Williams 2000). Given the business school's link to the global marketplace, independent third parties (e.g., professionals, alumni, recruiters, etc.) should be encouraged to participate in setting objectives, as well as their evaluation.

The Business Planning Model (BPM) provides a useful example for illustrating the differences between educational goals and objectives, as well as the specificity needed for objectives to drive selection of content, delivery method, and assessment techniques. The BPM is a new approach to teaching introductory managerial accounting (Barsky and Catanach 2005). The need to dramatically revise this course became apparent as student dislike for the traditional "cost accounting lite" approach increased. Consequently, the goal of this curriculum innovation was to help students gain an appreciation for the value of information, rather than to prepare them for a later course in cost accounting. In pursuit of this mission, the developers established five broad objectives: (1) introduce basic business processes, the resulting information flows, and basic business decision-making tools, (2) explain risk assessment and strategy, (3) promote critical thinking, (4) develop communication skills, and (5) foster teamwork.

Selecting Topical Coverage

Course goals and related objectives should drive the topical coverage selected for any revised curriculum. To create a truly innovative curriculum, avoid traditional structures—think "outside the box." To identify traditional topics that can be de-emphasized in the new curriculum, try reviewing a traditional textbook and tearing out content pages that have been rendered less important by technology advances. For example, in an accounting education context, depreciation calculations and periodic inventory methods are ideal candidates for de-emphasis, given the role that computers now play in expense calculation and inventory management. Focus instead on topics that help students think like experts in realistic scenarios. A review of current educational and professional literature can help to identify recurring themes and hot topics. Discussions with practicing professionals can be useful in identifying critical skills or topical areas they would consider important for success. Discussions with colleagues involved in curriculum innovation at other institutions also may be fruitful. Alternatively, visit their websites for information on course offerings.

Once potential topics have been selected, sequence the materials to support the strategic goals of the course. Develop themes early in the course, to be used as anchors in support of subsequent material. As an example, the BPM focuses on the following broad areas of topical coverage: (1) business strategy and basic business processes, (2) risk assessment, (3) forecasting and cost management, and (4) performance measurement (Barsky and Catanach 2005).

Course Delivery

Only after topical content has been selected can faculty determine the course delivery mechanisms. Delivery methods should be appropriate for both content and educational objectives. Delivery issues include class logistics, use of technology, selection and dissemination of course materials, and testing methods.

At many universities the registrar determines class size and student enrollment. However, innovative curriculum designs may best be delivered in smaller classes, requiring an increase in the number of section offerings needed to meet student demand. Classroom configuration also may be important. Will the course design require group or traditional seating arrangements? Are computer connections and projection technology available if needed? Planning also should consider whether the course is best delivered in 50 or 75-minute classroom sessions, and how it would be adapted for evening or summer course offerings.

Just as technology has dramatically changed business practices in recent decades, educational institutions increasingly are turning to e-learning platforms to improve their educational processes. In fact, at the end of 2005, over 2,200 educational institutions across 65 countries subscribed to Blackboard/WebCt services to facilitate course administration (Blackboard, Inc., Form 10-K). In addition to virtually eliminating all paper and printing costs, this technology provides faculty with a means to develop, manage, and revise instructional content on an ongoing basis during a course. Consequently, faculty developing innovative programs should be mindful of the synergies and resources that these tools can provide to curriculum change efforts.

Other technology issues also must be addressed. Does the curriculum innovation rely on simulation software? Are programming skills (e.g., Java, C++, etc.) part of the revision's educational goals? If so, will software be used during or outside of class time? If the development of research skills is one of the course objectives, are specialized databases available or appropriate? Are these databases accessible in the classroom for demonstration and training purposes? In the BPM (Barsky and Catanach 2005), technology remains in the "background," with little classroom usage, although the students use it extensively outside of class.

Curriculum change often relies on newly developed course materials in both traditional and non-traditional formats. If a traditional hard copy textbook is to be used, will it be a course driver or serve as a background reference? Custom publishing options available from many vendors allow faculty to include only desired topics, perhaps from several texts, in the material provided to the students. One publisher, University Readers (http://www.universityreaders.com/), provides the option of delivering custom tailored content either in hard copy, electronic form, or both, at costs dramatically lower than charged for traditional texts. Additionally, CD-ROM and web-based tutorials now are common course ancillaries. If you create your own course materials, you must decide how to disseminate them to your students, while protecting them from unauthorized access by others.

The final delivery issue faculty must address is testing. The manner in which student mastery of course material is evaluated should be tied to the educational

objectives established for the revised course. Traditional testing methods should be critically evaluated in light of new topical content and student reliance on technology. Testing should examine students' ability to apply concepts and techniques to tasks that will be encountered in the professional business world. Faculty also must consider the extent to which the course grade will be determined by team-based work and how "free rider" issues will be addressed. Finally, faculty must address how course changes affect academic integrity issues (e.g., collaboration, sharing of computer files, etc.).

The BPM uses a variety of delivery techniques to meet its course objectives. Over 50% of the course grade is based on a web-based, semester-long business simulation, Capsim (http://www.capsim.com/) in which students apply topical content (in groups) in the management of a fictitious sensor manufacturing company. Routine web-based quizzes and class discussions reinforce mastery of topical content. Exams account for 35% of the course grade, including a web-based, comprehensive final exam. The final exam requires students to individually manage the simulation sensor company and respond to queries from the company's board of directors.

In summary, a clear set of course goals and definitive educational objectives must be formalized to effectively execute curriculum change. Educational objectives provide a guide to decision-making for topical coverage and delivery issues. Student assignments and testing should be designed to provide evidence on the achievement of stated educational objectives.

The Curriculum "Make or Buy" Decision

Once a department or business school has made the decision to change and is ready to begin implementation, it must determine whether the new curriculum goals are best served by developing the revised course from scratch, or if buying an entire curriculum product or pieces of a product are better options. Therefore, educators must confront the classic "make or buy" decision that we teach our students, while considering both the advantages and disadvantages of each alternative, as well as their relative costs.

Making Your Own Course Product

Developing one's own innovation provides an interesting and creative opportunity that can be both fun and personally enriching. More importantly, it also may yield outcomes that are more likely to fit your program and curriculum change objectives. Additionally, development of a truly innovative and effective course product can produce huge payoffs for the developers and their institution in terms of prestige and national reputation. In fact, several international business education organizations annually recognize developers of creative pedagogical innovations (e.g., the

American Accounting Association, Educational Innovation in Economics and Business, etc.). Colleagues, college and university administrators, and other organizations also may seek out innovators for expert advice further contributing psychic income to faculty innovators. Finally, students enjoy being affiliated with programs that are nationally recognized as being "cutting edge."

As enticing as the rewards from developing new curricula may be, the costs and disadvantages can be substantial. As McGann et al. (2007, p. 57) indicate, the lack of supporting texts or similar courses upon which to build can make the change process more difficult. Development and implementation are costly, in terms of both faculty time and institution resources. The resulting course must be tested on students, and potential failures may damage the existing reputation of the faculty, department, and business school. Untested innovations also may encounter resistance from students who resent being "guinea pigs" in the curriculum laboratory. McGann et al. (2007, p. 57) report that students expressed their displeasure with "new courses" through lower course evaluations in the first quarters of implementation. Therefore, they recommend that students be given the option of taking the pilot of a new course. Overall, significant risks must be incurred to reap the potentially large rewards of developing a unique, successful curriculum innovation.

Nevertheless, a thorough understanding of the costs of developing a new course product can enhance the probability of a positive experience. Costs associated with faculty, staffing, development support, and infrastructure all must be evaluated. As previously noted, appropriate faculty must be selected to develop and implement the change. Competing initiatives within the institution (e.g., executive education, graduate programs, etc.) already may be consuming the time of the most competent faculty, thus creating a resource allocation issue that must be resolved by senior administrators. For faculty charged with curriculum development, research productivity, and service expectations must be altered to reflect the substantial time commitment required for curriculum change. Teaching load reductions also may be appropriate during both the development and implementation phases of the innovation. Summer grants may be a possibility if the development timetable encompasses this period. McGann et al. (2007, p. 58) acknowledge the value of grants in enabling change, particularly as it relates to compensating key team members.

Other potential costs include administrative and technical support. If the proposed change includes technology (e.g., e-learning platforms, web-based simulations, etc.), faculty may require assistance from the institution's technology experts. While graduate students could be useful in gathering data and pilot testing draft materials, administrative staff assistance also will be needed to proof and assemble course materials. Course development lead time will drive the amount of required faculty training: if rollout is planned in the near term, faculty will certainly need greater support than if delivery is in the more distant future.

Finally, a variety of infrastructure issues must be addressed when designing and delivering new curricula. If the proposal involves group work, are classrooms designed to accommodate such activities? For technology applications, do students have sufficient access to computers and the Internet? Is Internet access in the classroom needed or available on a consistent and reliable basis? For web technology

intensive courses, is sufficient server space available to support these applications? These are just examples of the many issues to be considered, when deciding to create your own curriculum product.

Buying an Existing Course Product

If the costs and disadvantages of developing a new course product appear daunting, buying an "off the shelf" product may be another option. Purchasing an existing commercial product avoids most of the production issues previously discussed, most notably the time investment and other development costs. For example, increasingly business schools are turning to commercial, web-based simulations to promote cross-functional integration of topical content (e.g., Capsim by Management Simulations Inc.). Purchased products often provide significant product support, including telephone instructor access, conferences, and a wealth of web-based supplementary resources. The sellers perform updates to the product, minimizing the preparation time required by adopters. A purchased product also provides users with access to a community of adopters for advice and questions. Since developers have tested their product and customers also have validated it, the risk of outright failure by subsequent adopters is significantly reduced. Moreover, student acceptance of the innovation is also likely to be higher if they see evidence of successful usage at other adopting institutions.

However, there are several potential disadvantages of buying a commercial course product "off the shelf." Purchasing an existing product presents few of the "prestige" opportunities associated with developing your own innovation. Depending on the nature and extent of the planned curriculum change, product selection may be limited, and those available may not fit your institution. For example, some products may be too easy, and others too hard. Also, some products will be clearly geared toward undergraduate courses, while others are more appropriate at the graduate level. Finally, some commercial products simply reflect attempts by their developer at integrating the research focus of the creator's institution into teaching materials.

While buying a product may reduce development risks, doing so limits potential rewards as the curriculum fit may not exactly match your institution's needs. Faculty must determine if the product can be modified to meet the specific needs and educational environment of the institution. Some flexibility as to delivery method, testing approach, and technical content can often enhance the fit of the product with the remainder of your curriculum. Although modification could impose additional costs, its benefits could increase the likelihood of successful adoption.

If you decide to adopt an existing product, what should you look for? In many cases, the nuances and intricacies of a product cannot be fully appreciated until it is used. However, there are a number of indicators of product quality that should be investigated prior to an adoption decision. A reasonable set of competing products should be thoroughly reviewed and compared to determine the best fit for the

planned curriculum revision. In other words, shop before you buy, and avoid relying exclusively on a publisher's recommendation. In assessing product quality, examine both the competency of the product developers and the level of product support. Are the developers creditable, do they possess superior reputations as teachers, and do they have practical professional experience that contributes to their academic knowledge? At what type of institution (e.g., public versus private, teaching versus research, quality of students, etc.) do the developers teach? If your institution is dissimilar to the developers' on a number of key dimensions, you should investigate whether the product also has been tested and adopted at institutions more similar to your own.

For products resulting in major curriculum revisions, it may be worthwhile to identify existing adopters and ascertain their satisfaction with a potential course product. If any of the institutions at which the product has previously been adopted are similar to your institution, their experiences may be generalizable to your environment. You may wish to visit classes at these other institutions to observe the course product in action and talk to both instructors and students currently using it. Although such visits require a major investment in product selection, they can contribute significantly to the quality of the final product selected and ultimately to the success of any subsequent implementation.

Assessment

Curriculum change should be an iterative process, with feedback from one delivery used to refine the product for future use. Therefore, the final section of this chapter is devoted to identifying the features necessary for meaningful assessment of curriculum change. Generally, assessment will take place at the third phase of organizational change, *refreezing*. However, the iterative nature of assessment and feedback will ultimately lead the organization through the change phases multiple times.

In many cases, new assessment instruments will be needed to either replace or supplement traditional teaching and course evaluations. At many universities, teaching evaluations are designed for lecture-based teaching approaches and technologies of the nineteenth and twentieth centuries. Such evaluations may give misleading results on the effectiveness of innovations that abandon the lecture method and require extensive student research outside of the classroom. In such instances, traditional evaluations may produce student comments such as "I learned so much, but I had to teach myself." Some students may even fail to recognize just what they did learn and rate the course poorly. Consequently, appropriate evaluation instruments must be tailored to reflect and capture the new educational objectives and delivery techniques of any revised course(s). In designing these evaluations, faculty must take care that the results are collected, summarized, and reported in a scholarly fashion or they will be subject to continuous criticism. We recommend the use of multiple instruments (pre and post) and multiple evaluation approaches (e.g., surveys, focus groups, visitations by outside evaluators, etc.). Evaluation of curriculum

innovation should consider not only student reactions, but also those of faculty and professionals that employ your students.

Questions should be constructed that measure attainment of each stated course objective. To clearly identify the effects of the curriculum innovation, assessment instruments must also measure and control for demographic factors, instructor differences, and initial student attitudes. We recommend using multiple metrics for each important construct and incorporating appropriate validity checks. In addition to questions answered on Likert-type scales, we also suggest the use of open-ended questions allowing students to make suggestions and express their likes and dislikes.

The BPM has been implemented, revised, and repeatedly assessed since its initial adoption (Barsky and Catanach 2005). Assessment techniques currently are focused on finalized course materials using pre- and post-semester surveys of students involved in the course. Alumni, professionals, and recruiters also have observed the course in action and provided feedback. In a recent offering of the course, students reported an appreciation for the BPM's realism, but disliked the course work load and ambiguity that accompanied the realistic business applications.

Assessment results provide useful feedback for monitoring and refining curriculum change (see Apostolou 1999; Harwood and Cohen 1999). Therefore, they should be fully shared with those faculty involved in the curriculum change project. However, broader dissemination should be undertaken with care, since not all members of the institutional community are likely to agree with curriculum change and may interpret preliminary assessment results as evidence of failure. Innovation takes time. Short-term results should be interpreted as areas to improve or maintain content and methods. Long-term results matter. As course materials evolve and improve, and students learn to view the course as "normal" not "new," assessment result will provide clearer evidence as to whether the innovation has met its goals. If uncertainty exists as to how to interpret assessment results, faculty involved in curriculum innovation at other institutions may be able to provide insights.

Conclusion

In recent years, professional and educator groups have argued that business curricula require fundamental change. Many of these groups have even detailed the specific skills required for students to succeed in the challenging business world of the twenty-first century. The task facing educators is to translate these needed skills into specific, attainable educational objectives and to design courses to meet the identified goals. This chapter assists faculty in meeting this overwhelming task by providing a context specific framework based on our framed experiences and classroom insights that identifies specific issues, factors, and steps to be considered in planning for and implementing curriculum change. Table 1 provides a useful checklist that summarizes the critical steps to executing curriculum change.

Table 1 Curriculum revision checklist

Environmental force analysis	Determine and prioritize the market, technology, student, and institutional factors that drive and influence the decision to reengineer the educational value chain
Change manager selection	Identify the appropriate faculty to champion, organize, and execute the institution's intended curriculum change
Impact assessment	Evaluate the impact of proposed curriculum on stakeholders: • Student attitudes • Faculty performance evaluation and development • Other courses
Program goals and objectives	Establish clear, observable, and measurable goals and objectives that target desired student learning outcomes
Topical coverage	Select topical coverage that meets the stated educational goals and objectives
Innovation Delivery	Choose content delivery methods that are appropriate for program goals and objectives and that address: • Class logistics • Technology • Course materials • Testing methods
The curriculum "make or buy" decision	Determine whether curriculum goals will best be served by development of new materials, or by purchasing existing commercial educational products, or both
Innovation assessment	Collect, report, and share data that provides insights into innovation effectiveness

The planning process must first consider the environment in which the institution operates, including student demographics, institutional incentives, placement history and target markets, and the impact of technology. Next, appropriate faculty must be identified to spearhead the change process and participate in design and implementation. The impact of the change on courses within and outside of the business school must be considered, as well as the impact on students, faculty, and other interested parties across the institution.

The form of change to be undertaken must be determined by the faculty implementation team. In many cases, the specific goals of the institution can be met only by creating course materials and structure from scratch. However, a number of innovative course products are available from publishers and other institutions. Faculty should carefully consider the advantages and disadvantages of "buying" such a product versus "making" their own. Final curriculum revisions should be driven by pedagogical goals and formal educational objectives. Topical course content should be chosen that is consistent with these goals and objectives. Next, delivery and testing issues must be addressed. Finally, the resulting curriculum should be carefully assessed to determine its success or failure and identify areas for improvement and revision. Careful attention to each stage of the change process can assist faculty in effectively undertaking and managing the enormous task of preparing our students for the new challenges of the accounting profession.

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How Should Service-Dominated Logic Be Applied to Business Education?

Janjaap Semeijn, Judith H. Semeijn and Marjolein C. J. Caniëls

Introduction

In recent papers by Vargo and Lusch (2008), Ordanini and Pasini (2008) and Grönroos (2006), the traditional view of value being created by manufacturing products (Goods-Dominated Logic) is profoundly challenged by a new view concerning the main purpose of the goods and services produced. The reason for their existence is to assist customers in their own value creation processes. No value is added unless a customer can in turn create additional value with the help of the received goods and services. It is to be expected that this Service-Dominated (S-D) Logic will take hold in the minds of scholars as well as practitioners pursuing modern business management that includes marketing and service management: S-D Logic conveniently integrates the until now seemingly disparate disciplines of business to business, services and consumer marketing, in essence encompassing B2B, B2C, C2B, and C2C.

In this respect, business education can be seen as a service that assists students and life-long learners in their processes of creating knowledge and value. In fact, modern business education should not only include S-D Logic in its programs content-wise (see e.g. Ford and Bowen 2008); it can also apply the logic to its own core business of providing knowledge to (future) managers. Students can be considered co-producers of the educational service production process (see also Sundbo and Gallouj 1998). Winston (1999) and Winston and Zimmerman (2003) already recognized the role of peers in this process. In view of the many challenges imposed by modern business on education and training (see e.g. Schoemaker 2008; Acito et al. 2008), this new S-D Logic approach towards educational value and processes may bring useful indications for the renewal of current and the development of future business programs in a variety of educational contexts. Schoemaker (2008) argues that transforming students into co-creators of the educational content and experience is one of the main implications for business schools, if they want to meet the modern challenges that business

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schools are facing. Business schools should be viewed as a set of complex stakeholder relationships, instead of a (physical) place. Thus, a more network-oriented approach seems appropriate. S-D Logic arguments are in line with these suggestions.

We would like to examine how value is created directly within the student's setting, and indirectly how value is created as a result of student learning. We will examine to what extent S-D Logic is applicable to educational value, and how current educational practices can be adjusted to include the perception of end customers of the service process in which the student is participating. In this chapter, we intend to conceptually explore the consequences and implications of S-D Logic for business education in general, and for different types of business education in particular:

1. Standard (full-time) university business education for young adults after high school leading first to a bachelor and then a master degree in business
2. Distance learning education aimed at adults, providing bachelor diplomas, pre-master certification and master level certificates or degree
3. Executive MBA education

These different types of business students create different kinds of value in and with their education, and place different demands on the educational institutions and their programs. To elaborate this point, we will first discuss S-D Logic and its foundation in the marketing and service sciences. Subsequently, its relevance will become clear for different combinations of study and work settings, as experienced by students. The relevant concepts will be further outlined in our conceptual framework, for the purpose of preliminary and future empirical analyses. The chapter ends with implications for educational practice.

Theoretical Background

Service-Dominated Logic

Vargo and Lusch (2004) observe (similar to Grönroos 2006) that time has come to replace the traditional Goods-Dominated Logic in marketing with the new S-D Logic, but also note that a theory of service is still in its infancy, and requires further construction. Vargo and Lusch (2008) further propose ten evolving propositions to advance service theory:

1. Service is the fundamental basis of exchange
2. Indirect exchange masks the fundamental basis of exchange
3. Goods are distribution mechanisms for service provision
4. Operant resources, i.e. knowledge and skills, are the fundamental source of competitive advantage
5. All economies are service economies
6. The customer is always a co-creator of value
7. The enterprise cannot deliver value, but only offer value propositions
8. A service-centred view is inherently customer oriented and relational

9. All social and economic actors are resource integrators
10. Value is always uniquely and experientially determined by the beneficiary

A recent insight is that 'competence in provision of service' and 'competence in consumption of service' have acquired equal importance. Self-service now competes with service from others, in contrast with the traditional view in which service from others competes with service from different others. However, to consume the most sophisticated services, extreme levels of competence may be required, rendering self-service infeasible (e.g. performing surgery on oneself). In business education self-service is not so far-fetched, and multiple institutions, from libraries to scholar-oriented websites, can support self-learning. In fact, business education has to reflect on and pay attention to its comparative advantage in delivering knowledge and adding value against many heterogeneous competitors, varying from Google to consulting firms (Schoemaker 2008). Without renewing and transforming educational value and accepting its implications for teaching and research in and management of these educational institutions, any attempt to keep the interest of (life-long) learners and students is doomed. However, S-D Logic may offer interesting possibilities to help business education in regaining its comparative advantage in the knowledge and training services market.

Spohrer and Maglio (2008) argue that a general theory of service should consist of three bodies of knowledge:

1. Service systems and their services, including the origins of new service systems (Creation)
2. Service systems improvements, including improving efficiency, effectiveness and sustainability (Perfection)
3. Service system scaling, how improvements in one service system can be spread to other service systems (Transformation)

For business education, bodies 2 and 3 seem particularly relevant at this point. Although new service creation (body 1) in the context of education is interesting in itself, the effects for value creation through interaction with the students are especially relevant for further exploration. These effects are likely to be different per type of business program. Different types of business students create different values with their education, and place different demands on the educational institutions and their programs.

Different Perspectives on Educational Objectives and Value (Co)Creation

From an educational perspective, a debate continues on which knowledge should be taught in business schools, and how it should be taught (see e.g. Chia and Holt 2008; Rubin and Dierdorff 2009). The central issue here is what education should do to create (its) value. Although legitimate on its own, the educational service staged at business schools represents only one relevant *half* of the situation at hand. The other half concerns the value that is created by the student/learner during interaction with the educational process and afterwards. O'Brian and Deans (1996) paid

already attention to this line of thought in advising tertiary education to implement 'supply chain management' in their strategic planning. However, business schools seem not to have taken this advice on a large scale. Numerous publications have pointed to the inadequacy of business and management education since then, for a variety of reasons (see e.g. Rynes and Trank 1999; Mintzberg 2004). Solutions are suggested in taking a more evidence-based approach to management education (Rousseau 2006), or including more interest for 'soft skills' in management education (Eberhardt et al. 1997), or in taking a far more practical approach in management education (see e.g. Bennis and O'Toole 2005). However, S-D Logic as such has so far not been explored for its use in education. We think S-D Logic may be helpful in transforming business education more profoundly to meet the current requirements of learners in our knowledge- and service-oriented world.

This being said, we return to our premise that different types of learners will co-create different educational values for business programs. Educational value will likely be different for traditional young students (not working, although engaged in different types of social networks), than for working adult learners (taking part in networks related to work and professional development). Knowles (1970) already argued that adults have ample prior experiences and can manage them in a self-directed way. Adult learners and employees are the main focus group for modern theories on life-long learning (LLL). In this perspective on learning, learning is an ongoing process, in which the student/learner has the lead, although often sustained and assisted by educational programs, training and (other) social contexts and contacts (e.g. Hummel et al. 2005).

The idea that students/learners *construct* knowledge, based on the information they are gathering and (re)structuring, is also underlying popular systems like Problem-Based Learning (e.g. Schmidt et al. 2006) and Project-Based Learning. The idea of *co-creation* of knowledge takes this idea one step further, by not only using the knowledge (information) made accessible by education, but also all other information and knowledge sources available in social contexts. Modern learning theories seem to confirm the importance of integrating knowledge creation and learning (e.g. Illeris 2003). In educational research, this type of learning and knowledge creation is mainly acknowledged in 'learning networks' (Hummel et al. 2005). The social aspect of learning and networking is also acknowledged by economic-geographical studies, into predictors of innovation and learning outcomes (see e.g. Hauser et al. 2007).

Therefore, in business education, time has come to seriously explore and integrate findings of other research fields for more comprehensive and effective views on developing the core business of providing service to students in their particular and heterogeneous learning contexts. These students have changing needs, while learning 'lifelong', and seem to welcome formulas of learning that new enterprises in the corporate training world seem to offer (see e.g. Armstrong and Sadler-Smith 2008). Ford and Bowen (2008) advocate that more attention should be given to the topic of S-D Logic within educational programs, including being mindful of the concept for education as such. We agree that this mindset on the value of education should be further explored, and we would like to attend to this matter more directly.

Conceptual Framework

Educational Value Parameters and Research Propositions

To guide research efforts and to examine different educational programs from an S-D Logic perspective, new research propositions are needed. It is important to recognize that students in three different types of business programs have distinctly different learning needs. These result in different ways in which educational value is being co-created. Young adults need to acquire learning skills and confidence, in addition to a diploma, to pursue a new profession after their education. Executives and other high level managers may benefit most from leadership-oriented skills, in addition to a certificate that makes their leadership role legitimate (De Déa Roglio and Light 2009).

Students involved in educational contexts for further professional learning and so-called 'life-long learning', are often already engaged in networks for value activities with customers, and busy climbing the career ladder. They would benefit most from competencies that make them more useful for their job networks, for instance, by being able to implement improvements to make these networks more effective (Dyer and Hatch 2006). Subsequent organizational learning resulting from student learning should also be taken into account here, because of the tight and direct relations with (end) customers in the students' networks. This organisational learning will occur because of and through existing knowledge assets as well as new knowledge capabilities of the students, and subsequently of the (end) customers as well. In this way, refinement or renewal of (organisational) knowledge takes place (Kinnie et al. 2006, March 1991).

Using S-D Logic, and considering how educational value is being co-created in the student/learner's setting for each of the categories of business programs, we propose to examine the following:

1. The main parties involved in value co-creation, including peers (Winston 1999).
2. The time horizon for evaluation, as this horizon will be much further away for full-time and generally younger students than for executive MBAs.
3. The stakeholders in addition to the student, because they vary across different student groups, e.g. parents are more involved as stakeholders for younger students.
4. Funding and accreditation.
5. Types of learning motivation, i.e. intrinsic versus extrinsic motivation to learn (see e.g. Renninger 2000) may differ across age and working experience of students and the direct motive and cause for following education. Whereas young adults 'just' need a start qualification for entering the labour market, part-time distance learners may have more content related reasons for learning. Executive MBAs may have more explicit career motives.
6. Subsequent organisational learning can be considered for its quality, but the quickness of learning effects may also be a good value parameter.

Table 1 shows some parameters that will likely be helpful in examining the educational value created.

Table 1 Educational value parameters for different business program categories

Business program category	Main parties in value co-creation	Short- vs. long-term horizon	Evaluations by students vs. evaluation by others	Funding from self vs. funding from others	Learning motivation: intrinsic vs. extrinsic	Subsequent organizational learning
Full time	Student Fellow students Educator	Longer term	Students Parents Employers Government	Mostly others	Low	Low
Part time distance	Student Employer Educator	Medium term	Students Employers Government	Mostly self	High	High
Executive MBA	Student Peers Employer Educator	Short term	Students Employers	Mostly employer	Medium	Medium

Business programs co-create educational value together with students/learners in particular settings, each of which will have an effect on both the educational value created and how this value is perceived. The following propositions can be used to compare the different types of students and the value created and perceived by these students in the different educational programs and approaches.

Compared to part-time, distance education and executive MBA students, educating full-time students:

Proposition 1: …involves peer influence by a larger number of fellow students, and a reduced influence by employers in value co-creation.

Proposition 2: …requires a relatively long-time horizon for value creation in their life/careers/society.

Proposition 3: …involves more stakeholders and parties evaluating the value created.

Proposition 4: …uses more outside funding sources.

Proposition 5: …targets the (younger) student's desire to learn.

Proposition 6: …does not have the benefit of short-term organizational learning.

Preliminary Analysis with Survey Data

There are indications that most full-time business programs are in tune with their students' needs, while distance learning programs and executive MBA programs exhibit a larger gap between what students and their employers want, and what is currently being emphasized (e.g. Rubin and Dierdorff 2009). Preliminary analyses on survey data of full-time Maastricht business students suggest that these students are indeed rather satisfied with the short-term value of their education, based on the

graduates' satisfaction with the acquired knowledge and skills upon graduation for entering the labour market. In addition, it appears that final grades of these graduates are predicted by academic qualities of teaching staff, but only to a very small extent. In contrast, we found that methodological thesis supervision contributed far more substantially to the final thesis grade for part-time distance learning students (Semeijn et al. 2009). We speculate that these different shares in co-creation of educational value by educational staff can be attributed to the involvement of peers in this process. Full-time students interact frequently with fellow students, while distance learners do not.

Empirical exploration includes examination of existing survey data of full-time business students from several universities (short- and longer-term outcomes). These data contain measurements (self-perceptions) that are needed to test some of the propositions. Additional data gathering with respect to the value co-creation with relevant factors involved will be necessary. Further, a survey for (Open University) distance education graduates and for graduates of the different part-time and full-time business MBA programs will be developed.

Discussion and Conclusion

In our conceptual framework we distinguished different parameters affecting co-created educational value for three different types of business programs. Research propositions involving the value of education take into account the time horizon of evaluation, the stakeholders involved and funding composition, the main parties involved in the value co-creation process, the level and type of learning motivation of the learners/students and the resulting effect on organizational learning. Our list of parameters is however not meant to be exhaustive. The value created by educational institutions appears to be more difficult to determine, since students are co-creators, and employers play a larger role in both funding and evaluation and co-creation. Note that when students are employed, the educational value created by them can also have an effect on how organizations co-create value with end-customers. Therefore, existing educational evaluation methods will likely prove insufficient when integrating S-D Logic. Although its full implications are difficult to determine, some can already be put forward:

Educational Implications of S-D Logic

First of all, students perform a dual role. They are the users of educational services, and at the same time they participate in the educational service production process. In that sense they are co-producers (Sundbo and Gallouj 1998). When S-D Logic is applied to education, students have the possibility to give their inputs, and in return

they receive education that is customized to their preferences and needs. Since each student to some extent has unique individual characteristics and perceptions, he or she will also have an idiosyncratic and heterogeneous demand for educational services. This means that each act of education provision has to be in a sense tailor made (Zeithaml and Bitner 2003, p. 21).

Knowledgeable and demanding students are a valuable asset to a business school and to individual lecturers as well. They support the development of new ideas and solutions by sharing their requirements, insights, information and knowledge (Grönroos 2000). However, the benefits of receiving inputs from students will not occur spontaneously. A vital requirement is the establishment of durable relations with students. Student and lecturer have to earn each other's trust and loyalty, and they have to become used to each other's way of thinking and acting. A shared understanding of problems and opportunities is needed. This common way of thinking and doing does not develop overnight and needs to be cultivated. The two parties need to learn to view each other as partners. The student has to be explicit about his needs and wishes, and the lecturer should be flexible and knowledgeable enough to adapt the provision of education to each student. Such a relationship needs to be nurtured on a continuous basis. This being said, business schools cannot realistically expect to create ongoing partnership relations with all students. Some students—perhaps even the majority—may not be interested in, or capable of, establishing and entertaining close contact with the business school on an ongoing basis. Only a minority of students tend to be truly articulate, motivated and capable enough to maintain close linkages with the business school. Fortunately, active partnering with a small group of active students is generally sufficient for a business school to build a successful student-driven educational strategy. The key to successful market development for a business school lies in identifying these key lead students, who will be prepared to act as its early development partners (Rogers 1995).

Possible barriers to effective student-lecturer interaction might lie in the fact that educational services are intangible; they constitute performances rather than physical products. Objective performance standards are hard to set and verify. Also, since an educational service has to be produced on the spot at the time when the student consumes it ('inseparability'), uniformly high motivation and quality of lecturers is essential. Heterogeneity in the delivery of education can be a problem as well. Aside from idiosyncratic student requirements on the demand side, it is difficult on the part of the business school to assure uniform quality because of varying performance of lecturers (Parasuraman et al. 1985).

Future Research

According to Grönroos and Ojasalo (2004), service organizations need a much deeper understanding of the concept, and the various factors involved in measuring productivity. Benefits from our explorative conceptual framework include specific

ways for business programs to create better value, not only in the minds of the students but also in combination with their present and future customers, in organisations and the society which collectively fund these business programs. This chapter demonstrates how a relatively simple conceptual step in the way the purpose of business is reformulated has far-reaching consequences for the educational programs designed to teach students to become valuable contributors in delivering service. Further research is needed to show the pervasiveness of S-D Logic in modern organizations as well as in education. For the educational context, new research can help through, for instance further elaboration of the needed concepts, testing newly formulated propositions and measuring co-creation processes and their results.

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Champlain MBA

Development of an MBA Program Based on Integrated Reflective Practice

Donald R. Haggerty and Victor J. Stone

Introduction

Champlain College, located in northwestern rural Vermont, entered the MBA educational market in 2005 with a goal of offering a course of study that addresses the many criticisms of existing programs and delivering a unique, high quality learning experience tuned to the needs of working professionals. In the course of developing the program, a new pedagogy was fashioned to exploit the theories and best practices of management development and experientially-based action learning methods. This pedagogy, called Integrated Reflective Practice (IRP), has evolved into the signature educational methodology of the existing and planned Champlain College graduate programs. In the following pages, the evolution and status of the Champlain MBA will be described; beginning with a discussion of the MBA critique and a review of the theoretical underpinnings of the IRP methodology. Following that, the MBA program design point will be characterized. Finally, the program's challenges and opportunities will be examined along with the plans and strategies for moving the program forward. In summary, this is a story of an MBA program that has been well received by students, grown at an exponential rate over the past three years, and how it is being continually improved and modified as faculty gain experience, confidence, and learning in the IRP methodology.

The MBA Dilemma

In early 2003, after evaluating considerable primary and secondary research, soliciting faculty input and conducting extensive interviews with community advisory board members, Champlain College elected to design, develop, and offer its own MBA program. The program needed to be mindful and true to the College's mission

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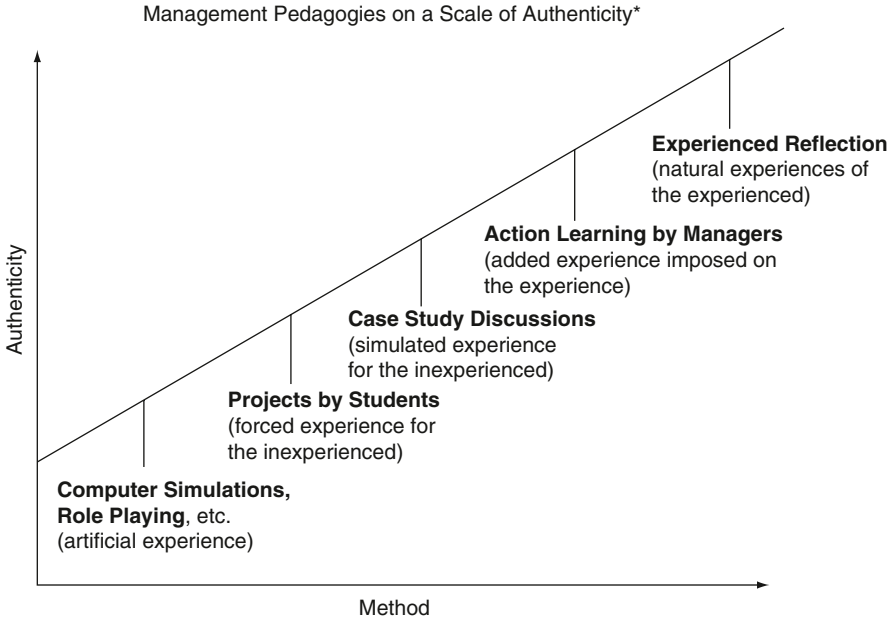
of providing career focused education while also attempting to create a differentiated product for an already crowded market.

In a certain sense this task was made easier by the plethora of critique, thoughtful analysis, and concern being aired about traditional, functionally focused MBA programs. Academics such as Pfeffer and Fong (2002) were critical of the traditional MBA as a tool for developing managers. The popular book *Managers Not MBAs* (Mintzberg 2004) provided a vividly blunt account of the shortcomings of the MBA degree and a bit later Bennis and O'Toole (2005) argued that business schools had lost their way.

These critiques offered insight and some consensus about several significant dysfunctions and failures of most contemporary, traditional MBA programs. First, most programs were failing to build student competencies in leadership, communication, and self-confidence in managing careers of life-long learning. Much of this is attributable to the perpetual dialectic between the worlds of practice and theory. As Pfeffer and Fong (2002, p. 85) pointed out, "the importance of practice and experience is why studies of leadership development…consistently find that the best way of developing leaders is to provide people with opportunities to lead." Of course, this is a difficult task to embed in an academic program but the lack of an experiential dimension severely limits the efficacy of an MBA program. Ergo, the Champlain College definition of learning needed to be broadened to include those soft, personal, social, and emotional skills that affect one's leadership potential and personal development success.

Second, most MBA programs fail to exploit authentic and clinically contextualized student experiences. In other words, there is simply too little learning in con-



*Mintzberg, H., 2004, *Managers Not MBAs*, Berett kohler Publishers, San Francisco

text (Mintzberg 2004). Because management is a practice, there is always a desire to include more experiential activities; however, there is a wide range of experiential pedagogies used in graduate level management education. Some of them are more authentic than others and they span the gamut from least authentic—simulations, role playing, projects, and case studies—to most authentic—action learning and experienced reflection. The challenge is in designing student experiences that are the most authentic learning experiences possible, within the boundaries of formal educational processes.

This insight suggests that a high quality MBA program should incorporate an authentic clinical component to ensure that students' learning is tied to the actual practice of managing.

Third, many programs are not successful at effectively integrating multiple functional disciplines into the decision making and problem solving processes. Most curricula fail to recognize that management decisions are multi-disciplinary and are "in the final analysis, questions of judgment…[that] have implications for marketing, sales, manufacturing, and morale that can't be shoe-horned into an equation" (Bennis and O'Toole 2005). This begs curriculum designers and course developers to create deliberate linkages between quantitative analysis and critical thinking, create learning that is integrated across all courses, and links multiple disciplinary perspectives. It also calls for a faculty that has a good blend of academic training and business practice experience so that there is more openness to the interrelatedness of academic disciplines.

Finally, too few programs prepare students for careers of life-long learning. Research evidence suggests that this is perhaps the most widespread criticism of the MBA degree. There seem to be few programs that "focus not only on learning concepts and techniques, but also on changing how people think about business issues" (Pfeffer and Fong 2002, p. 89). More needs to be done to educate managers to reflect on their experiences (Mintzberg 2004) and to ensure that "business education should help students to learn to recognize their conditioned reflexes" (Bennis and O'Toole 2005, p. 100). All of this speaks to the necessity to make deliberate use of mental frameworks and processes of deliberate reflective learning to enhance the overall quality of thinking and decision making of MBA students.

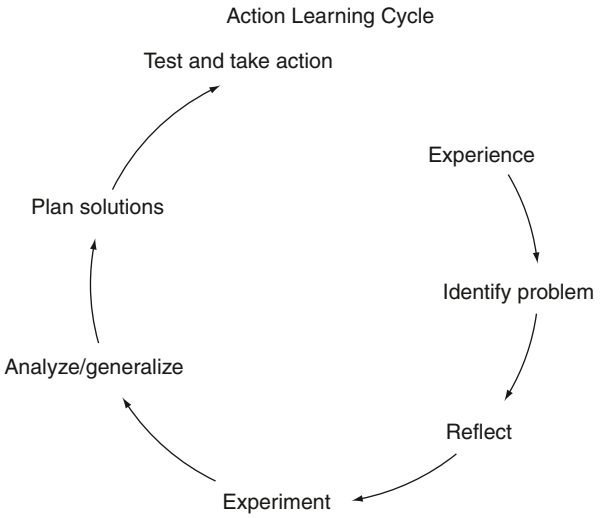
Theoretical Framework

As noted in the previous section, the several failures and short falls of many MBA programs provide specific insights about what should be avoided, improved upon, or more fully exploited in the development of a new MBA program. Further, there is a wealth of theory and learning models that can inform the design of a fresh, new program. In the course of developing the Champlain MBA, five lines of research were investigated and ultimately applied to formulate a pedagogy that would work for Champlain College. It is not the intention of this chapter to fully explore each of these five important threads of research but it is worthwhile to briefly summarize some key elements to fully appreciate the design points and specifications of the Champlain MBA. In order, then, the following key topics will be briefly summa-

rized: action learning, knowledge management, reflective learning, systems thinking, and experiential learning.

Action Learning

Action learning and action research are both frameworks of inquiry and problem solving that are grounded in deep, personal learning, collaboration, and organizational learning. One of the most useful models of action learning is the *Action Learning Cycle* (Marquardt 1999). This model highlights the sequence of events that unfold to provide learning insights in the organizational context. In this model, the learner experiences a dissonant event, identifies a problem, reflects on the issue, experiments to find a solution, analyzes and generalizes for the experiment, plans a course of remedial action, tests the proposed solution, and then takes final action.



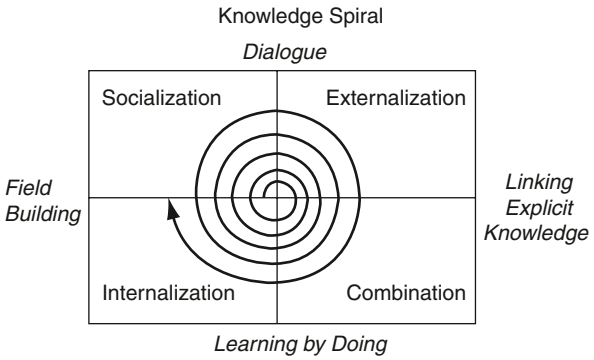
From: Marquardt, M. (1999). *Action learning in action* (p. 36)

Raelin (1997), in his extremely thorough study of work-based experiential learning, characterized action learning as being ultimately concerned with stimulating behavioral change through "public reflection on real work practices" (p. 23). Action leaning begins from a position that work experience is learning and that there should be no barrier between learning and doing. Action Learning projects, therefore, become an important component of action learning because they provide the avenue for authentic learning in context. In order to replicate real time conditions, it is normally advised that projects provide strategic value to the organization that sponsors the project (Raelin 2008). This produces authenticity and leverages the

experiential dimension of the *Action Learning Cycle.* This supports the concept that action learning embedded in the curriculum through the use of in situ projects provides the central experientially-based framework for program design that links the curriculum directly to the students' workplace.

Knowledge Management

The principle contribution that the field of knowledge management makes to the resolution of the MBA dilemma is the notion that knowledge creation is an identifiable process that accounts for learning at the individual and group levels. In the model chosen (see below), learning takes place in knowledge spirals wherein which knowledge is made, combined, internalized, and socialized in an ongoing way (Nonaka and Takeuchi 1995).



From: Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company: How Japanese companies create the dynamics of innovation* (p. 71)

This provides both validation and pedagogical extension of the *Action Learning Cycle* by dovetailing with the fundamental assumptions of action learning and providing further insights into the traditions of knowledge creation in organizations. At the individual level, the framework provides insight into the process of life-long learning and the development of learning skills that are required of all managers in today's dynamic organizational environments.

Reflective Learning

Reflection is the practice of pondering and expressing the meaning to self and to others in one's immediate environment of what has, will, or is happening (Raelin

2008). Reflective practice or work-based reflection was first given notable attention by Schon (1987) who set out to understand working professionals who used an internal dialectic process of working through problems. This can be accomplished using a process of postmortem reviews via "reflection in action…[or]…reflection in practice" (Schon 1983, p. 61). The willingness and capability of individuals to create the opportunity for reflection not only allow engagement in deeper and more meaningful learning but also open the door to dealing with emotions and feelings that would otherwise be lost. The direct relevance to our MBA design lies in its application at both the individual and group levels as a pedagogical basis for both action learning and knowledge management.

Individual reflection provides a space in which one can "ask challenging questions from a position of mutual discovery…[and]…to reflect upon challenging work situations" (Daudelin 1966, p. 38). As well, group reflection is known to be essential to group development, especially in helping group members learn to appreciate contrary points of view, styles of interaction, and varying levels of commitment to the team (Raelin 2008). Reflective learning makes room for emotional learning, as well. Both individual and group reflection are complex processes that involve both feelings and cognition (Boud et al. 1985) and, as such, suggest that reflective learning and the widespread use of reflection across the curriculum can support quality learning associated with workplace experiences.

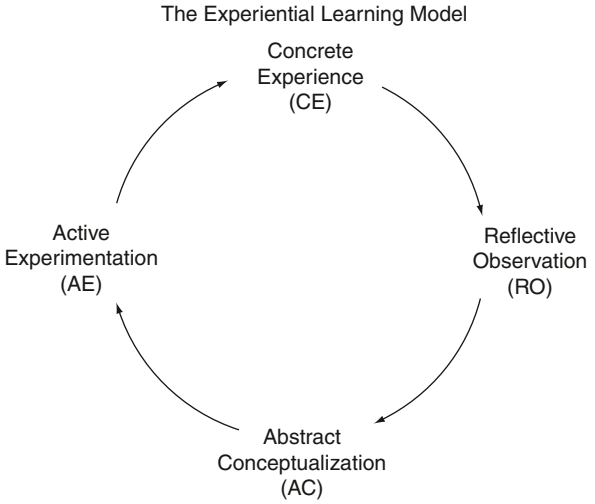
Systems Thinking

Systems' thinking, in the most generic sense, brings our attention to the interrelatedness of events and organizational components. Within the context of designing an MBA program, this translates into the need to introduce learning that breaks down silos of thinking and encourages more holistic problem solving and decision making. The need to apply multiple disciplines has been often included and was reiterated in the most recent Association to Advance Collegiate Schools of Business (AACSB) Standards for graduate level business education. The standards support cross-functional thinking by stating that "learning at the master's level is developed in a more integrative, interdisciplinary fashion than undergraduate education" (AACSB International 2008, p. 19). Interdisciplinary approaches allow students to make more connections between concept and practice and obtain a view of the subject matter that is less fragmented (Pfeffer and Fong 2002). System thinking and problem solving provide the rationale for cross-disciplinary integration of multiple areas of management practice across the curriculum.

Experiential Learning

Learning from experience in the workplace is not a new concept and has roots that "extend to the works of John Dewey, Kurt Lewin, and Jean Piaget" (Keeton 1994,

p. 8). Kolb (1984), innovating from the base set by these predecessors, crafted the widely recognized *experiential learning model* (below) which characterizes the cycle by which individuals learn and adapt from their experiences.



Adapted from: Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development* (p. 42)

Experiential learning inevitably involves four dimensions; although the starting point may be different for each individual depending on the experience and preferences. The directional arrows show the pathway that is typical for most learning experiences. To be effective; however, learners must be able to participate in all phases: concrete experience, reflective observation, abstract conceptualization, and active experimentation. For our purposes this model informs us that both practitioners and students must understand their own learning styles and have an appreciation for the preferred styles of others. This enriches student interaction and problem solving both in the class and within the workplace. Philosophically, experiential learning provides a foundation with a broad research base that explains individual learning in action learning, reflective learning, and knowledge management.

Five Theories to One Learning Model

The reader might ask how such seemingly distant fields of study converge to support a new program design. The answer begins and ends with the learner. Ultimately, the criticisms of management education center on the differences between those learning experiences that are designed and those that are more contextual. Our proposed

program is based on the hypothesis that systematically blending more contextualized learning enhances all learning. In the absence of research that directly supports the benefits of experientially supplemented learning, the program design is based upon theories of management development that are more experientially oriented.

The five areas described above all provide a unique contribution to their mutual underlying belief that intentional learning from experience is a major contributor not only to professional development but to organizational knowledge creation and management development. They all share the common thread that the knowledge making ability of an individual is based on the belief "that engagement in practice"…"may well be a condition for the effectiveness of learning" (Lave and Wenger 1991, p. 93). Practice, in this sense, is conceded to include others in the process.

Underlying such learning is the concept of tacit knowledge which "is learned from experience, either pre-consciously-that is, without having entered the conscious mind-or consciously, and has been forgotten or even repressed" (Jarvis 1999, p. 48). In other words, all of the five domains chosen support the assumption that learning can be enhanced through tacit understandings as a starting point for knowledge creation. Nonaka and Takeuchi (1995) state as one of his most fundamental assumptions that "human knowledge is created and expanded through social interaction between tacit knowledge and explicit knowledge" (p. 61). The contribution of each is outlined below.

Action Learning Deep shared learning based on inquiry and reflection is the basis of this team oriented method of solving organizational problems. In addition to being team based, as a process, action learning provides the tools of coaching/facilitation and dialogue to enhance learning. Its focus on learning is what separates action learning from traditional teams and its use of dialogue and inquiry built around questioning and openness to learning provides the environment for tacit knowledge to become explicit.

Knowledge Management This same spirit of inquiry through dialogue is also an underpinning to Nonaka and Takeuchi's work (1995) on knowledge management in which they state that "organizational knowledge creation, therefore, should be understood as a process that 'organizationally' amplified the knowledge created by individuals" (p. 59). In many ways it is this linkage to tacit learning and experiential learning that distinguishes Nonaka and Takeuchi from many other knowledge management theorists. They begin very deliberately at the level of individual learning, consistent with action learning as a basis for team and organizational learning when they state that "knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization" (p. 59).

Experiential Learning Kolb's work, while not the only model of experiential learning, provides guidance because it is thoroughly developed, widely embraced, and well understood by both theorists and practitioners. His model of learning styles, while somewhat useful in a more traditional classroom as a basis for designing learning activities, is really most well suited to work-based learning in which

the learner is confronted with the difficulties of reconciling his/her own learning style with colleagues. Kolb's model of experiential learning adds a learning structure at the individual level that aligns philosophically with both action learning and knowledge management.

Reflective Learning It is both a component and extension of the experiential learning model. As a component, reflective observation is one of Kolb's four learning types. Additionally, reflective learning also goes beyond the strict boundaries of individual cognitive learning, as described by Kolb, by including both the social and emotional aspects of learning. In this regard it supports both action learning and knowledge management as socially based learning processes that depend on an open spirit of enquiry when confronted with the data of experience—as the only component of our model that specifically recognizes the emotional aspects of learning. By doing so it makes space for some aspects of learning not otherwise included explicitly such as emotional intelligence as developed by Goleman (1998) and others.

Systems Thinking When taken in its broadest form, systems thinking involves the ability to view problems from multiple perspectives, or frames. This ability to reframe problems is a cornerstone of action learning methodology and is inherently a part of the dialogical and reflective learning process. The process of reframing is best summed up by Bolman and Deal (1997) when they state:

> All of the work of organizational learning converges around the basic idea that our ability to make sense out of a complicated and ambiguous world depends very much on the frames, or mental models, that we bring to the task. (p. 28)

They go on to maintain that

> determining what is really going on requires more sophisticated lenses than many managers currently possess. It also requires the flexibility to look at organizations from more than one angle. (p. 33)

Learning Perspectives

To reiterate, none of the above five frameworks alone provides the depth, breadth, and robustness needed for a comprehensive model of management development, and specifically, management learning. The role of management is complex enough to require the teamwork of *action learning,* the multitude of learning behaviors found in Kolb's *learning styles,* the self-reflective depth of *reflective learning,* the *systems* perspectives of multiple frames, and *knowledge management's* processes of building learning to the organizational level. Each of these models is inextricably linked in numerous ways to each other, and together they provide a synergistic model for learning that can provide a foundation for graduate management education.

MBA Design Requirements

Upon synthesizing the MBA dilemma and critique, analyzing feedback from faculty and advisory groups, investigating the potential solutions offered by learning theorists, and accepting the pragmatic limitations inherent in creating a clean slate program, five design requirements were specified for the Champlain MBA program:

1. Embrace a management development perspective approach by linking to the workplace.
2. Utilize an experientially-based pedagogy that supports both individual and group learning.
3. Integrate the curriculum to enable cross-disciplinary thinking.
4. Focus on intentional, appropriate learning processes to ensure program authenticity and consistency.
5. Build the program around an online learning format.

It was determined that these five design requirements could provide the cement that would bind the Champlain MBA program into a holistic experience that would meet the needs of managers and leaders who need to upgrade their skills to match the needs of today's workplace and changing economy.

Champlain's MBA program was also built upon the concept that management is a practice and, as such, is characterized by ambiguity and the interrelatedness of all business functions. The curriculum is built on the premise that the job of the manager is frequently to untangle problems that are poorly defined and for which the selection of both information and mental frameworks is the key to taking effective action. These actions need to be driven by reflection on the possibilities, the impacts, the unintended consequences, and the real meaning of decisions in order to produce authentic learning for future experiences and problems. By applying concepts to real problems, students would be developing the ability to construct, measure, and revise knowledge based on imperfect information. More importantly, they would learn the importance of learning both from and with others as they engage in their respective workplaces.

Management Development Perspective

Four high level management competencies were developed at the program level in order to further channel curriculum development efforts into a single framework. These key competencies adopt a management development perspective that would help to differentiate the Champlain MBA in the market. These competencies included:

- Work collaboratively in a virtual team environment using internet-based technologies and a variety of desktop software applications.
- Demonstrate the ability to reconcile personal and organizational values with all problem analysis and decision-making situations.

- Approach, analyze, and assume leadership on problems in a reflective and integrated manner while managing ambiguity and paradox.
- Perform ongoing critical self-reflection from academic and work-based learning experiences and articulate the personal learning and growth that has resulted from those experiences.

Given Champlain's focus on the practice of management, it was determined that the students' adaptation to the program's philosophy could not be left to chance. An initial course, required of all incoming students, was developed to serve as an orientation and introduction to the management tools of organizational learning. These topics were considered to be the backbone of our management development perspective and included:

- Action learning team problem solving
- Experiential learning
- Learning styles
- Personality styles
- Workplace competencies
- Emotional intelligence
- Leadership and dialogue
- Teamwork and team communication
- Integrated decision making
- Action research

To support student learning throughout the program, faculty training modules were created and are offered to graduate faculty on an ongoing basis. All faculty members, regardless of their specific discipline, are asked to adapt the program's design to their courses. There was no single prescriptive solution for doing this; instead, each course was crafted to embrace the elements that helped to support the core competencies and a management development perspective.

Experience-Based Pedagogy

While many competitive programs have appended an action component that encourages students to do assignments in the workplace, few make the conscious effort to deliberately structure the program around an experiential learning model of thinking that includes deliberate reflection. It was felt that to be effective in building a program based on experiential learning, it would be necessary to include reflection in all courses. As students embarked on experientially based assignment activities and projects, they would apply reflective practice within the context of every course. Champlain's MBA program, therefore, makes a commitment to building both individual and group reflection into the learning process as a way to imbed the lifelong experiential learning skills needed by managers.

Experiential learning also is reinforced through the use of action learning techniques. This was a natural choice because action learning is a management process and philosophy that has deep alignment with our core beliefs about learning and management. The most important of these is the philosophy that problem solving needs to go beyond the immediate issue by allowing participants to take the time for reflective learning. We believe that as a method of addressing issues in the workplace, it has simultaneous application to problem solving, organizational learning, team building, leadership development, professional growth, and career development (Marquardt 1999).

It was decided that the experiential component of the program would be embedded into every course through a major project deliverable designed to assess or improve a workplace issue. Each course's project would count for no less than 25% of the course content to ensure that it would make up a critical portion of the course learning. It is recommended that projects follow action learning guidelines and group reflective practices by either involving others associated with the problem in the student's workplace or by working with classmates to support each other in their respective workplace projects. Consistent with concepts presented earlier, projects need to be as authentic as possible and enable the students to implement or, at least, recommend solutions that can be seriously considered for adoption. In addition to the action learning projects, other assignments and activities also take the student into their workplace routinely to collect data, assess smaller problems, and report out to the class or the instructor.

The strength of the experiential component lies in its systematic application throughout the curriculum. Students are grounded in the theory of experiential learning through their self-assessment and team building during the orientation course while faculty members are trained in action learning and experiential learning to better support students in their action learning projects throughout their degree program. Projects are significant enough in scope to drive other components of the curriculum by making every course focused on the difficulties inherent to the practice of management.

Another means of building more experiential learning into the program is through a capstone course involving an internship or final project experience. For students considering a career switch, the use of the capstone as an internship project provides an excellent way to step into another industry. In the *Corporate Recruiters Survey 2002* conducted by the Graduate Management Admissions Council (2002), the desirability of an internship or functional experience was considered as very or extremely important by 70% of the responding recruiters. In our own research, both employers and employment specialists strongly supported the use of a capstone or internship experience for less experienced students. For those currently employed, the capstone provides an opportunity to create a project that integrates their learning from the program into a project outside their normal responsibilities in their workplace. Whether used as a capstone or an internship, this three credit course provides an opportunity for students to disengage from entrenched ways of thinking and behaving by taking on a challenging role in a new environment, even if within the same organization.

Integrated Curriculum

The initial curriculum, for those having met all prerequisite requirements, consisted of 13 courses. For a variety of reasons, the program was designed to err on the slightly functional side of the spectrum. While this may seem surprising in view of our desire to include a systems approach, our proprietary research and competitive analysis suggested that even the most progressive programs have maintained a high degree of consistency with the traditional MBA disciplines.

There are several reasons for this decision. First, maintaining a reasonable degree of consistency with traditional silos of MBA curriculum is important to prospective students, and it has been our own experience that prospects typically do review course titles and descriptions when choosing a graduate program. Second, being too different may jeopardize student interest in the program overall, especially given our new entrance into the market. Third, the college was facing, at the time, securing initial program accreditation, and it was felt that the curriculum needed to look and feel like an MBA and not a general management degree.

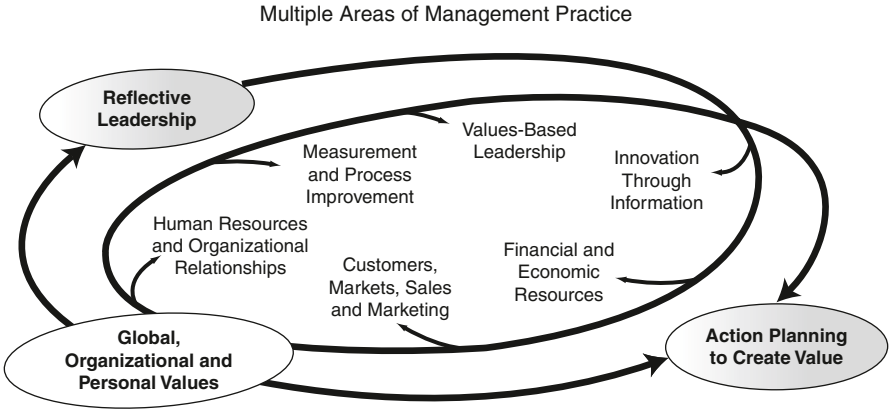
Within these constraints, we set out to design courses that do, however, reflect more current thinking about management issues and decided to treat any cross-disciplinary integration within the context of those individual courses. The course titles in the program include:

- IRP (includes orientation to pedagogy and program)
- Project management
- Aligning mission and values in a global environment
- Performance measurement and accounting systems
- Financial decision making for management
- Process improvement and operations
- Customers, markets, and sales/marketing programs
- Business economics and modeling value
- Group dynamics, communication, and negotiation
- Managing innovation through information technology
- Action planning and decision making
- Reflective leadership and planned change
- Integrative capstone project/field experience

Because integration of disciplinary thinking would be occurring within the above courses, our next step was to develop a single framework that encouraged a more holistic, or systems perspective. The fundamental assumption is that, especially for work-based projects and case studies, decision making needed to consider multiple perspectives. Providing a framework and taking steps to ensure multidisciplinary thought throughout the program would enable students to become extremely adept at its application and help to offset single mono-disciplinary thinking.

The decision-making models previously mentioned, input from both faculty and advisors, plus cues from Baldrige criteria for performance excellence (National Institute of Standards and Technology (2003) informed the construction of a our framework. The model needed to be comprehensive in its approach, consistent with

our experiential pedagogy, and easy to communicate to both faculty and students. The final outcome, shown in the diagram below, called *Multiple Areas of Management Practice,* is used as a basis for integrated analysis in many projects, case studies, and work-based assignments.



At the center of the process are the six fundamental systems that are inherent to virtually all managerial problems regardless of the specific issue. These provide multiple frames of reference when approaching managerial problems in any course. They include: (1) measurement and process improvement, (2) values-based leadership, (3) innovation through information, (4) financial and economic resources, (5) customers, markets, sales and marketing, and (5) human resources and organizational relationships. These systems, however, are applied in the context of values and reflective leadership that drive action and decision-making. The result and goal of management is to embed all of the above into planning that creates value for the organization and its stakeholders.

While all courses in the curriculum have a well-defined content area, they simultaneously apply the *Multiple Areas of Management Practice* to encourage students to become very quickly accustomed to thinking outside of the traditional silo of a given course. Through a combination of designing each course to take a slightly more inclusive perspective of its academic discipline and integrating multiple perspectives into the major assignments of each course, the program avoids the silo mindset and supports more integrative thinking throughout the entire program.

Intentional, Defined Learning Processes

The learning process needs to be consistent with the pedagogy of the program itself and the given experiential nature of the program; the concept of reflection and reflective learning attains a high level of significance. Reflection is important because simply participating in field experiences, or work-based projects, is not, itself, assurance

of good learning. The action of experientially-based activity needs to be supported by intentional reflection and a process that allows students to consciously make new connections that constitute good learning within specific course objectives.

Reflective learning supports both action learning and the integrated curriculum because in both it is the reframing of problems that helps to ensure authentic learning. This happens through critical self-reflection that documents personal learning and growth from all major projects. Guidelines and suggestions for reflection have been developed and shared among both students and faculty. Students are introduced to reflective learning as one of many pedagogical concepts during the first course of the program.

Because courses are online they are inherently discussion based to encourage the liberal use of public reflection and reflective learning in dyads, teams, and as an entire class. In the process of doing their course work, students learn about reflective practice which "occurs in the midst of practice but is also produced in the presence of others" (Raelin 2008, p. 126).

Reflective practice is socially-based learning and is characterized by dialogue and "an exchange of statements of points of view…in the safe presence of trusting peers" (Raelin 2008, p. 125). It is done through the following activities: framing, disclosing, speaking, and testing. This is particularly important in the students' action learning projects in which they reflect intentionally on the consequences of their projects and share their findings with their peers. Doing this is consistent with the program competencies associated with management development and soft skills of communication and collaboration.

Research on reflective learning in the workplace validated the mutual dependency between reflective learning and employee's use of clear learning models used routinely as a framework for approaching problems. It was found that "participants who were observed to be the most reflective generally had some clearly defined personal system or mental model of learning, however simple, that they used consistently in a manner that was thoroughly integrated into their work processes. They were exercising habits that showed some reflection, at a previous point in their lives, on learning how to learn" (Haggerty 2001, p. 235).

As students matriculate through the program, they are able to develop several strategies that they might take back to their organizations to encourage more widespread use of reflective learning as a vehicle for lifelong learning. This occurs in multiple venues that include: individual or team reflective actions, community building based on public reflection and dialogue, process improvement as a catalyst for ongoing reflection about, and the formation of learning teams in which participants are focused on both problem solving and deep learning. Ultimately, the program attempts to engender in each student an appreciation for the culture of learning that they can take with them into the workplace.

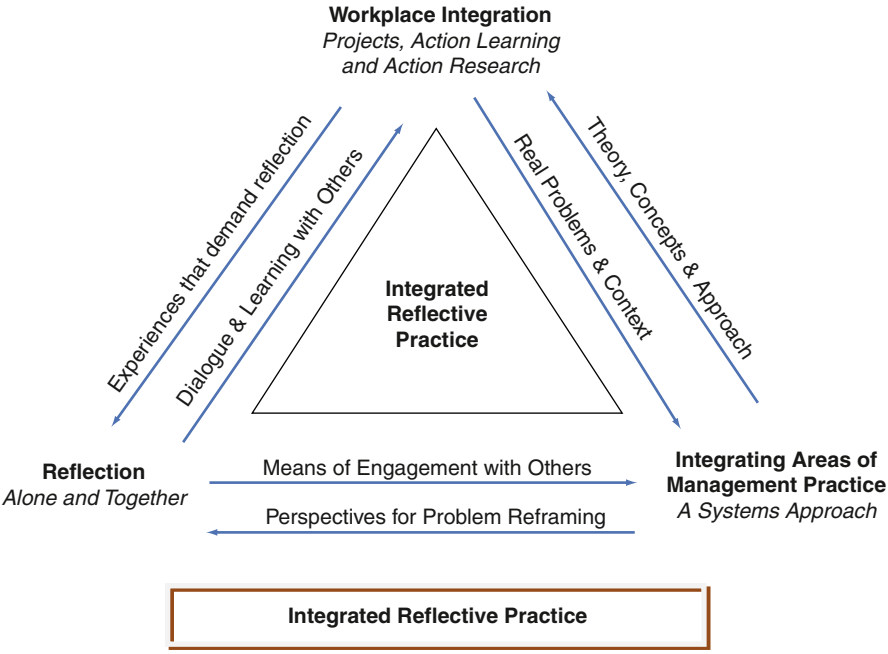
Online Learning Format

This is perhaps the most pragmatic and straightforward aspect of designing the Champlain MBA program. Champlain College is a small school tucked away in

a mostly rural area in northwestern Vermont. The College is situated within the town of Burlington and is surrounded by residential neighborhoods. The school's facilities are and were fully utilized with undergraduate programs. It became obvious, therefore, that an online alternative would be the most efficient, effective, and cost conscious delivery mechanism for the MBA program. The Internet's key features (Laudon and Traver 2004) of ubiquitous access, global reach, universal standards, media richness, interactivity, information density, and personalization and customization features provide the venue for high quality instructional presentation and engaging learning experience.

Program Implementation: IRP

The five design requirements of the Champlain MBA program are now manifest and embodied in what has become known as Champlain College's IRP framework. IRP pedagogy prescribes that real work experiences or problems should serve as the learning vehicle in which students drive their understanding of theory and ability to create their own theory. Fully 25% of the student learning experience in each course is expected to be tied to an action learning or action research based project in which collaboration with colleagues and mentors in the workplace is highly encouraged. Reflection is used across the program to extract meaning from both work-based experiences and course work. This is in direct response to the need to be deliberate



about the learning process. Courses are designed with a primary content emphasis but constructed in a manner that recognizes, values, and embeds the integration of multiple functional areas of management into problems, case studies, and work-based projects. A field-based integrative capstone experience is situated as a final step in the program to give students a concluding opportunity to use action research techniques and to reemphasize management practice integration while addressing a large, real-world problem.

The IRP model helps to crystallize our approach and learning model. The three primary components of the program, workplace integration, reflection and integrating areas of management practice are all mutually supportive and equally important to the program design. Each serves as both a provider and recipient to the other two thereby creating a foundation for the curriculum that is consistent with our theoretical framework and meets all of our five design requirements.

Experience So Far

As mentioned earlier, the Champlain College MBA program has been in operation for nearly four years. Over this time, compromises have been made in program elements in the interest of developing a strong finished product. It is safe to say, however, that the IRP pedagogy has deeply permeated the curriculum and serves as a distinguishing rallying point for the graduate faculty. Over the years, an ongoing series of audits and program competency assessments have been conducted to assess the status and configuration of each course, its position within the IRP framework, and, of course, to induce constant, consistent improvement. Not surprisingly, the creativity and thoughtfulness of the MBA faculty has produced some innovative ideas and approaches regarding projects, integration of management practice, workplace integration, and reflection.

Projects

Champlain MBA instructors have fully embraced the notion of embedding experiential projects into their course offerings and valuing them at the 20–25% levels. Ten of the 13 core courses (two program non-core courses do not require projects) feature clearly articulated work-based learning projects. Some examples of these projects are: creating a learning/personal development plan, devising a value-driven decision model for the work place, performing a work place cost performance improvement project, and constructing an organizational persona evaluation and so on.

Two courses in the program employ a traditional case study approach and one uses a competitive business simulation project. The latter project has received high praise from students as a way to test their own mastery of the multiple areas of business practice.

What is perhaps most interesting and gratifying about the work-based project assignments is that they induce students to seriously consider their work environments, take action on issues that they find interesting or in need of examination, and then introduce themselves to operatives and mangers in departments and business areas with which they don't normally interact. For example, a sales person might find that his or her pursuit of a management accounting or finance project requires that they seek out and introduce themselves to the company treasurer, controller, or chief financial officer. This emphasizes the interrelatedness of course work and the workplace. In many cases, managers of various companies have been able to leverage student work to collect and analyze business information for work-related purposes while supporting their students.

Finally, we have collected anecdotal information that student's work for the final capstone integrative field project course is being used to fulfill personal or business objectives. One student used her MBA work-related project to build a business plan, another to launch a business expansion, and still another has used the opportunity to propose a new line of business for his company. In this latter case, the proposal was accepted and implemented.

In summary, 80% of the courses have clearly articulated work-based projects at the core of their design, 15% use traditional case study projects, and 5% use a term-long computer business simulation experience.

Integration of the Six Areas of Management Practice

In a perfect world, each of our courses would address its primary functional topic and interweave elements from the other five areas of management practice. At this stage of the program evolution, we have not yet attained that ideal state. At present, each course is touching on four areas of management—its primary content plus inclusion of three others. There is considerable variation, as seen in Table 1.

All areas, with the exception of customers, markets, sales and marketing are emphasized in 11 of 15 courses. This highlights an obvious focus point for improvement but the data also show that instructors are making laudable efforts to tie together the various functional areas of business within the context of each course. Thus students are receiving consistent and ongoing reinforcement about the importance of the interdisciplinary nature of business management.

Workplace Integration

There are three principle strategies utilized by instructors in the MBA program to facilitate interaction in the workplace with course theory. Obviously, the work-based course projects—which have already been discussed—contribute to this effort but two other strategies have emerged that appear to resonate in the virtual

Table 1 Six areas of management integration

MBA topical coverage		Strength of integration	
Course	Topics integrated	Area	Instances
MBA 500	4	Innovation through information	11
MBA 505	6	Human resources and org. relationships	11
MBA 510	3	Values-based leadership	11
MBA 515	3	Financial and economic resources	11
MBA 520	6	Measurement and process improvement	11
MBA 530	4	Customers, markets, sales and marketing	6
MBA 535	4		
MBA 540	1		
MBA 545	4		
MBA 590	6		
MIT 505	4		
MIT 525	3		
MIT 540	2		
MIT 550	6		
Average	4		
St Dev	1.5		

course room. First, instructors are making use of online discussion forums wherein they ask students to assess and comment on the workplace application of specific course theory or concepts. This practice motivates students to dig into their current or past work experiences and position them in context to the relevant theories of a learning module. This also gives other students an opportunity to benefit from their fellow student's observations and interpretations and, as well, the opportunity to comment on and reassess the situation using their personal interpretations. This is perhaps one of the most highly rated elements of each course—the chance to gain insight into various workplace phenomena through the eyes of their fellow learners.

The other common method of drawing specific attention to workplace and theory interaction is to assign specific weekly deliverables that require students to assess a theory, concept, principle, or widely used management practice as a unique assignment or part of a larger assignment directly to the instructor. This practice enables students to get guidance, advice, and mentoring moments from their scholar practitioner instructors. In many cases, students will discuss issues that they are reluctant to open up to a public forum or ask questions of an expert in the field. This demonstrates the level of trust and confidence that our students have in their faculty members.

Reflection

Graduate education conducted in the absence of reflection and reflective learning is a job undone. Working professionals need to learn the importance of taking time to

contemplate the meaning of their work experiences just as they need to tease out the meaning of their course experiences. By doing this, they can assess their personal growth and development as they interact with their environment.

Champlain instructors have implemented four general tactics to facilitate student reflection. Two of the most common methods are requiring students to include some sort of reflective statement as a part of their weekly assignment or to require a significant reflective component within the course final project. Some instructors stage three to four periodic public reflection episodes with the discussion forums. This allows for some dialogue among students about their mutual leaning, development, and changing attitudes during the term. A final tactic is to present students with a specific, focused reflection assignment, usually near the end of the term. This provides a means for students to summarize their course experience and learning evolution. As an aside, all of the MBA instructors complete a short reflection piece at the end of their courses to consolidate their learning from the course, understand the uniqueness of every class, and highlight potential improvements for the next course offering.

Theory into Practice

In addition to the IRP and projects analyses, the teaching practices can be identified by "reframing" and viewing them through the lens of the five theories that make up the program's theoretical framework. For each theoretical area, a sampling of currently used teaching practices have been shared (Table 2).

Going Forward

The integrate reflective practice pedagogy has resonated well with both students and faculty. It provides the framework that makes Champlain courses unique, inimitable, and novel. The creative implementation of workplace integration, reflection, and the integration of the six areas of management practice guide the faculty in the development and delivery of their courses while the students experience a reinforcing consistency about the practice of management from class to class.

As with any enterprising idea, there are challenges inherent with administering the IRP approach. Finding qualified, receptive faculty is not a trivial manner as the ideal instructor must be academically qualified, have a significant amount of practitioner experience, and be receptive and supportive of the IPR philosophy. Ongoing training for both full time and adjunct faculty is necessary to keep the goals and objectives of the MBA program and its IRP approach fresh and exciting. Attention to the evolution in online technology is a must as the pedagogy

Table 2 Theories and practices used in integrated reflective practice

Theoretical foundation	Teaching practices
Action learning	• Workshops with role playing dialogue and facilitation/coaching skills • Team deliverables documenting action learning teamwork in support of individual projects • Action learning teams formed during residency to build trust, dialogue, and communication competencies
Systems thinking	• Workshops using multiple reframing models to emphasize the reframing process • Workshops applying six areas of management practice to student owned organizational problems • Six areas of management practice used selectively or in total for both weekly assignments and action research projects
Knowledge management	• Problem-based discussions among both teams and entire class held online • New knowledge derived through socially-based learning as part of action learning projects in the students' places of work
Experiential learning	• Learning style inventory (Kolb) completed, shared with team members, and applied to personal development plans • Learning style emphasized in multiple assignments • Team assignments specifically built around the application of team members' learning styles
Reflective learning	• Workshops on reflective learning and reframing (see reframing above) • Full 360 degree assessment using Daniel Goleman's *emotional social competency inventory* as a basis for workshops on the role of emotion in learning • Reflective writing built into all types of assignments including projects, team deliverables, quantitative analyses, etc.

can be enhanced by the use of wikis, blogs, social networking, and improved audio and video course components. As well, a continuing commitment to auditing and assessing courses is necessary in order to harvest and disseminate IRP innovations from a creative faculty and to ensure that our courses remain true to the IRP ideal.

The Champlain MBA program is not a static offering; it is expected that the program will evolve to meet the changing needs of our students and their employers. Recently a new three day residency was added to the introductory course. Learning from this innovation will be the subject of an upcoming paper. As well, new courses are being developed and added to the curriculum to improve program quality and depth of topical coverage. Finally, there is both the opportunity and excitement of using the IRP formula as the pedagogical basis for new graduate programs to be offered by Champlain College.

Clearly, the use of IRP positions Champlain's MBA as a compelling educational offering that directly and effectively addresses the shortcomings of traditional MBA programs.

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Part II
Dealing with Diversity

“Learning from Differences”—A Design Principle for Management Education

Astrid Krummenauer-Grasser and Ulrich Müller

Preparing Leaders for a Global World

We live in a world of change; ageing of the population, globalization, climate change, and new technologies are just some of the significant challenges for states and the community of states, for enterprises, for local authorities, and for every single one of us (Larsen 2006). In this world of rapid and comprehensive changes, leaders are acting within more and more complex, open, and non-transparent situations. “Successful managers must watch future trends likely to impact on the actions they must take to keep their organizations moving forward” (Bartol et al. 2003, p. 21).

The American organizational psychologist Vaill (1998) appropriately refers to the turbulent social and organizational conditions of today’s world as “permanent white-water.” To cope with this “permanent white-water,” we need innovation instead of routine: developing creative solutions for continuously new challenges.

The common answer for this situation is “lifelong learning.” Everybody who wants to master this world of change has to adapt to its new requirements. The crucial qualifications for mastering the permanent change are the willingness and the ability to learn continuously. But what should people learn in order to master these challenges? What knowledge and what kind of attitude and behavior do they need? Is it primarily a question of “uploading” the newest “knowledge-update” on our “mental hard drive”—as quickly as possible and at the lowest cost, optimized by new learning technologies and self organized learning?

Actually there is much more to this. In the situation described above, it is a matter of learning in a broader sense, a learning that involves the whole person. If people, navigating through this “permanent white-water,” want to stay on course, if they want to be able to orient themselves in the currents of change, they do not only need knowledge and skills; they also need persistence and a center of stability within themselves. It is about values, about questions regarding the meaning of our

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living and acting, about responsibility and solidarity—in our private lives as well as in vocational learning. Learning aimed at personality development is needed.

Diversity is one of the most challenging issues of the global world. A growing number of people from different nationalities, cultures, and religions have to collaborate. Many companies and organizations in the United States as well as worldwide run diversity management programs. "The motivations behind these efforts are varied. Companies with positive reputations for managing diversity are likely to be at a competitive advantage in assembling talented individuals. For another, the customer base of most companies is also increasingly diverse" (Bartol et al. 2003, p. 22). New solutions for problems of today's world have to be developed by interdisciplinary teams within business companies as well as public bodies. We all need to be able to work together with people who vary from us—and to see the great opportunities, which lie in this fact.

Today, leaders have to be able to cope with diversity. Their worldview has to consider diversity as a normal fact in a global world. Their basic values should give them a deep acceptance of this fact and should help them recognizing great opportunities that arise from diversity. In addition, they should be able to cope with smaller as well as bigger turbulences which result from working together beyond frontiers, may it be cultural, ethnic, and religious frontiers.

Those challenges are also obvious in global training and development programs in multinational enterprises. Briscoe et al. (2009) described some necessities for global organizational learning. Besides the facilitation of learning from different cultures, some imperatives are to "develop global leadership skills" and "make learning a core competence for the global organization" (Briscoe et al. 2009, p. 200).

Reflecting this background, we should reconsider our approach to educating leaders. Programs and environments for the education of leaders have to anticipate structures and challenges of this new reality in a global world. They should be as close to reality as possible. "Learning from differences" is a design principle for management education that meets these demands.

The Design Principle: "Learning from Differences"[1]

In company training, further education, and schools it is often the purpose to work with homogeneous learning groups. However, is it also the best way to prepare managers for future challenges? New challenges require innovative answers. Today, barriers lose importance; working environments throughout the world grow together.

"Learning from differences" is a principle for the design of educational environments and programs. It connects people from different systems and cultures in order to learn from each other. Varied professional qualifications and biographies lead to different knowledge backgrounds of the participants. These different cultural backgrounds of diverse systems are integrated into the learning environment. Like this, training and management topics are approached in an authentic manner from the

[1] "Learning from differences" is translated from the German "Lernen am Unterschied." "Lernen am Unterschied"® is a registered trademark of the Baden-Württemberg State Trust.

holistic perspective of life-long learning, which is based on broad and genuine experience and education.

However, a successful practice of this educational design requires that both students and teachers display a higher degree of willingness to deal with differences constructively and see them as an opportunity to expand their own horizons. The willingness and ability to cooperate on an interdisciplinary basis is also one of the central goals of the program, which can only be achieved through the heterogeneous composition of participant groups.

Theoretical Background

"Learning from differences" is a concept for the design of management education which is based on system-thinking, as well as the constructivist idea of learning. We will first discuss the theoretical background in terms of system-thinking and then the connection to the ideas of constructivism.

System-Thinking

Thinking in systems allows analyzing the concept of "Learning from differences" in a specific way, as the interaction of systems in their characteristics illustrates how a learning process can be initialized. Autopoietic systems are characterized as self-referring in a circular process (Maturana 1993, pp. 121 ff.). We refer to these systems as structure-determined, which describes systems as based on their previous experience and working within a specific corridor of possibility (Arnold 2004, p. 77; Terhart 1999, p. 634; Maturana and Valera 1987, p. 27). In other words, interruptions from outside the system are only possible within its boundaries. Systems can be irritated but the system itself decides over quantity and quality of an opening to the environment and a possible change within the system (Ackermann 2005, p. 35; Baitsch 1993, pp. 12 f. and 27 f.). In this sense, systems are energetically open and at the same time closed. Figure 1 shows such a system.

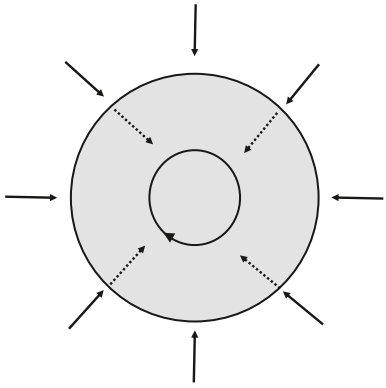

Fig. 1 Energetic open and at the same time closed system. (Ackermann 2005, p. 36)

In order to start a learning process within the system, there has to be a perturbation from the outside, since changes cannot be expected from the system itself. The logic of the system has no reason to start a change or a learning process because it always relies on its own foundation. In consequence, systems need perturbation to get out of their routine, to be confronted with new ideas (Baitsch 1999, p. 262). Like described above, in a changing world it is—especially for managerial staff—important to stay in a process of continuous development, which needs perturbation.

Constructivism

Following, we look at constructivism in relation to its connection to "Learning from differences." The theory of constructivism focuses on a specific understanding of reality. In this understanding, reality does not exist as such, but only in interpretation of reality by every person. Following this idea, there are consequences for the process of learning. Mandl and Reinmann-Rothmeier (2001, pp. 4699 f., 2005, pp. 28 f.) show four structuring principles of the so called problem-oriented learning environment:

- Authenticity and applicability: The learning environment should enable the student to connect knowledge with real problems and authentic situations.
- Multiple contexts and perspectives: The learning environment should help to examine specific topics from several perspectives as well as in various situations so that the transfer of knowledge can be promoted.
- Social learning arrangements: This arrangement should emphasize cooperative learning in groups.
- Instructional guidance and support: Within this environment, learning requires instructional guidance and support.

Projecting these characteristics of a learning process, we distinguish a strong connection to the principle "Learning from differences." The following chapter first portrays "Learning from differences" as part of the Master's Study Program Educational Leadership at University of Education Ludwigsburg and afterwards points out the connections to system-thinking and the ideas of constructivism.

Example: The Master's Study Program in Educational Leadership at the University of Education Ludwigsburg (Germany)[2]

Goals, Study Organization, and Curricular Conception

Starting in the winter semester 2003/2004, the University of Education Ludwigsburg has been offering a master's program offering a further training in educational

[2] See, on the following, Müller (2009) and Müller et al. (2008).

leadership which qualifies participants for managerial positions in the educational sector. The course is designed and carried out by an association of organizations. Under the aegis of the University of Education Ludwigsburg, the following institutions are involved: the Baden-Württemberg Managerial Academy, the Baden-Württemberg Company Education Trust, the Education Trust of the Diocese of Rottenburg-Stuttgart, and the University of Hohenheim. Cooperation by representatives of the project partners in conception and planning, as well as the involvement of teaching staff from the associated organizations, ensures that the course is connected with and relevant to managerial and educational practice in the three fields concerned, i.e., adult education, the private economy, and school.

The program results from an initiative of the Baden-Württemberg State Trust, which was sponsoring the development of the study-course on the basis of a project running for five years (State Trust 2005, p. 47).

In this program, attention is focused on the acquisition of holistic and general managerial competence through self-guided, interactive, and process-oriented learning, closely adapted to individual professional requirements in daily practice and the occupational biography of the participants.

The master's study program in educational leadership is intended for executive and junior managerial staff in the educational sector. It aims to convey and train the general skills and knowledge necessary to fulfill managerial and executive functions. Managerial competence comprises sub-competences of professional, methodical, social, and personal fields. To carry out managerial functions successfully, it is not sufficient to simply have comprehensive knowledge (for instance, of communication processes) at one's disposal. Furthermore, it is necessary to be able to put this knowledge into practice in appropriate situations requiring interaction, e.g., in conversation and dialogue with other staff members. The program expressly aims at these communicative dimensions. It is located in the space between the theoretical standards expected of an academic program and the demands of practice-relevant transferable learning, which, among other things, also requires intensive training of practical competence in dialogue training.

Methodological Architecture

For this program, we designed a complex methodological architecture of a blended-learning concept. The project is particularly characterized by the fact that three professional areas are addressed by the program: adult education, school education (K-12), and company training. Themed "learning from differences" the course joins teachers, adult education instructors, and those responsible for company training schemes.

The program is designed on a part-time work-tandem basis and intended to cater to working participants from all over Germany and beyond. In order to do justice to the individual personal and professional situations of the participants, as well as taking account of the high-grade content and learning objectives of the program, a blended-learning concept was developed, combining and integrating

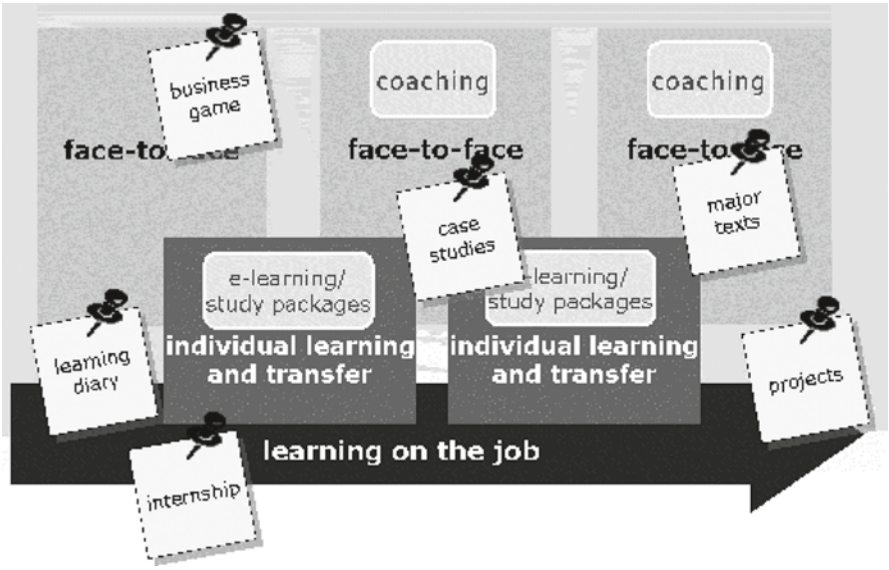

Fig. 2 The didactic-methodological architecture and selected methods. (Müller 2009, p. 231)

various study-forms and media, such as face-to-face seminars, course material, and e-learning. Three phases of attendance per semester take place in which the students learn face-to-face with each other and the lecturers. Between these seminar phases, the students learn self directed and transfer their knowledge (self learning and transfer phase). During these periods, the participants acquire new knowledge in preparation for the next subject area, they reflect on their daily professional life, test the transferability of contents in relation to their own areas of educational or management practice, and work on problems and tasks concerning the interrelationship of theory and practice. They maintain contact to each other and to their instructors via the e-learning platform of the master's program. Course material and e-learning help them to prepare for seminar phases and deal with post-seminar assignments. The self-learning and transfer phases constitute a bridge between the professional practice of the participants and the study program.

All participants are employed full-time or part-time by educational institutions or departments. This occupational process is the basis of the learning process and is thus one of the most important resources of the program (Fig. 2).

"Learning from Differences"

Within the framework of the Educational Leadership program, we use a variety of teaching and learning methods. Most of them are based on the "learning from differences" principle. Here are some examples.

In General

The lecturer team of the department and external staff is recruited from all three educational fields. All case studies, materials, regular assignments, etc. consider all three fields. Only in case of very specific content, we give specific input for each of the three groups. By putting them in small groups, we consistently mix up the participants via the three educational fields (adult education, school, economy).

Coaching

Continuous personal coaching is an integral part of the program. The principle of "learning from differences" is also applied to the coaching process; groups are formed in such a way that the opportunity is provided to gain more profound insight into the professional daily life of participants in fields different from one's own. The cultural differences between these fields are displayed in a very prominent way and encourage a rich learning experience.

Internship

The participants have to complete an internship of 4–6 weeks in a different system. For example: Participants who are working for a company go to an adult education agency, while teachers complete their internship in a business company. Thus, they will be able to really experience work and daily routine within a different system. While looking beyond their own nose, they are broadening their horizon as well as they are networking. Thus, everybody is gaining new ideas for innovations and solutions for their own organization while transferring know-how from system to system.

Project

Every participant has to work on a project during the program. This project has to be documented. This enables the students to

- work independently,
- develop managerial competence,
- develop ideas and putting them into practice,
- become acquainted with the tools of project management and their respective application, and
- work scientifically.

The projects are supervised by experts in small groups, which are composed trans-sectoral. By this, the participants will get feedback on their project from the views of colleagues who work in different systems.

Best Practice

Every participant has to give a report on an existing and successful management practice within the institution he works for. By these best practice reports, the participants gain an insight into structures and processes, problems, and solutions of the other fields and institutions.

Business Game

The business game is based on a mathematical market and production model. Working in teams, the participants manage (fictitious) companies in which they take on managerial roles such as financial director, production chief, and so on. The various teams, which join participants from different systems, act as competitors in a simulated market.

How Can Guidance and Support Help the Participants to "Learn from Differences"?

Most of our students choose our program because of the special methodological design and because of the chance to get knowledge of other fields and systems than their own. Like this, the principle "learning from differences" works by itself. Nevertheless some of the students are having problems during the program and need help. Here are some possibilities we use:

- Point out, how "learning from differences" works in the special setting.
- Give working groups additional questions or advice that explicitly aim at learning from differences, for example: "Have a special look on the differences between your institutions. Summarize what each institution might learn from the others."
- Offer participants the possibility to answer their special question in the next break or in the evening.

Some Challenges in Implementing This Practice

For the success of the principle "learning from differences" it is crucial to establish a team of suitable teachers/trainers.

- As many as possible teachers/trainers should have experience of more than one of the covered educational fields. If one has not, we have to make sure that he is prepared to meet participants from other fields and that he probably will have to face questions he will not be able to answer.

- The portfolio of the teachers/trainers has to be balanced throughout the program. So there should be nearly the same number of teachers coming from company training, adult education, or schools.
- Teachers/trainers need a profound introduction into the program and they need assistance and support to deal with the challenges.
- Teachers/trainers have to keep in mind that you cannot suit everybody. There always might be someone with a special interest that could not be covered.

"Learning from Differences" in Connection with the Theoretical Background

Linking the principle of "learning from differences" in Ludwigsburg to the theoretical background described above, we first focus on the system thinking. In these terms, we distinguish the participants of the Master's Study Program in Ludwigsburg (the educational manager) as part of the different systems of company training, adult education, and school education. Like this, each participant is member of a specific educational system, and as such he combines different skills and backgrounds.

Within the specially designed methodical structure of the master's study program, these different systems get confronted with each other through their members. In this way, a perturbation from outside is initiated, the routines of the educational systems are interrupted and a learning process can be started. Within this process, knowledge and experiences of the different educational systems are exchanged and reflected.

Figure 3 shows the exchange between the systems involved in the "learning from differences" at the master's study program for educational leadership/human resource management in Ludwigsburg. Like this, the systems of company training, adult education, as well as school education are linked to each other through the course of studies. As the systems confront each other with their different knowledge and experience (marked as the solid arrows between the systems), they initiate perturbations. These perturbations work—as described above—only within the boundaries of the system that is perturbed. Like this, the system itself decides of the incoming information (therefore illustrated as dashed arrows). However, the perturbation through another system distinguishes the start of a developing process within the systems of company training, adult education, and school education.

After focusing the system-thinking, we now connect the principle of "learning from differences" to the four structuring principles of the problem-oriented learning environment that are described above. In this way the following connections to the constructivism are to be pointed out.

The principle of *learning within multiple contexts and perspectives* is very strongly related to the "learning from differences." The participants of different systems bring in their diverse knowledge. As such, the topics of the master's study program can be reflected from different perspectives. The specialty of "learning from differences" is that the knowledge of the participants relies on different

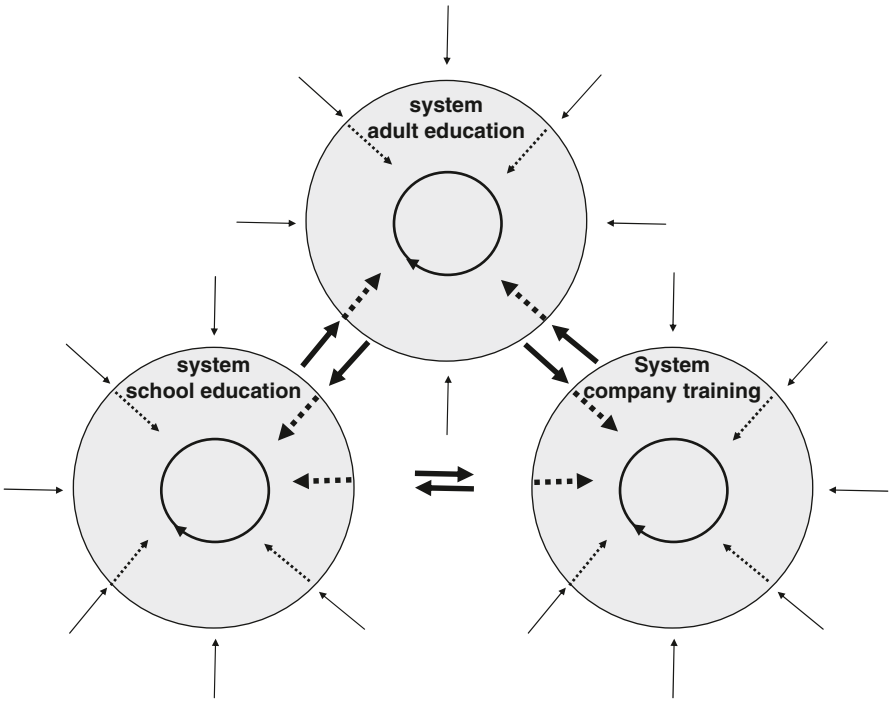

Fig. 3 "Learning from differences" at the master's study program for educational leadership in the perspective of system-thinking

backgrounds and in this way the knowledge is differently structured. In the exchange between the participants, new ideas enrich the learning process and its experience.

The other structuring principles of a problem-oriented learning environment can be seen especially in the methodical design of "learning from differences" as it is arranged in the master's study program in Ludwigsburg. Like this, the *authenticity and applicability* are supported, for example, in the context of the internships or the students' projects. The internship is—as mentioned before—placed in an authentic working setting, which is located in a different institutional system in order to ensure a "learning from differences." The students' projects are managed by the participants in their real environment but then discussed within a group of different educational systems.

The process of *social learning* is especially stressed during the face-to-face seminars. Methods of teaching are chosen so that the participants are able to get interact closely with other participants. Like this, a lot of group-work is offered in which the participants are encouraged to exchange their different skills and experiences. In addition to that, there is a certain amount of time arranged for individual conversations and, as such, for informal conversation.

Instructional guidance and support by an experienced lecturer team is given throughout all the just described methods. The lecturer team represents—as men-

tioned before—all three educational systems and like this, their guidance and information is structured.

The characteristics of the learning process, as expressed by Mandl and Reinmann-Rothmeier, are like this integrated into the concept of "learning from differences." Therefore, we describe "learning from differences" as a concept, which is based on a problem-oriented environment and is strongly related to constructivism.

Study I: Evaluation[3]

The discussion on the methodical design of "learning from differences" leads to the question how the students/participants of the master's study program Educational Leadership evaluate this concept.[4] In order to get a closer look at the participants' opinion, two courses (60 participants) were surveyed on this topic. The participants were asked to evaluate the concept via online questionnaire. The answers of 48 participants are summarized as follows.

The first question focused on the learning experience achieved by the "learning from differences": "During my studies, I profited repeatedly from learning experiences which were only possible due to the varied professional backgrounds of the participants."[5] The respondents evaluated on a 5-point Likert-scale (1—full disagreement up to 5—full agreement). Figure 4 shows on the left side the average summarizing all educational systems, on the right side the averages of each educational system itself.

Afterwards, we targeted the methodical elements and their relation to "learning from differences." The question was phrased as follows: "How important are the following elements of the program for your own personal 'learning from differ-

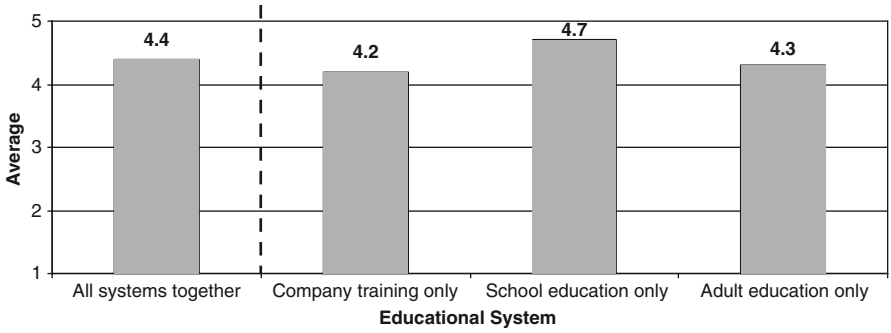

Fig. 4 Learning experience due to "learning from differences"

[3] For further findings see Müller and Hoidn (2008).

[4] See in the context of the evaluation also Krummenauer-Grasser and Schweizer (2008).

[5] All questions of the survey are translated from German to English language.

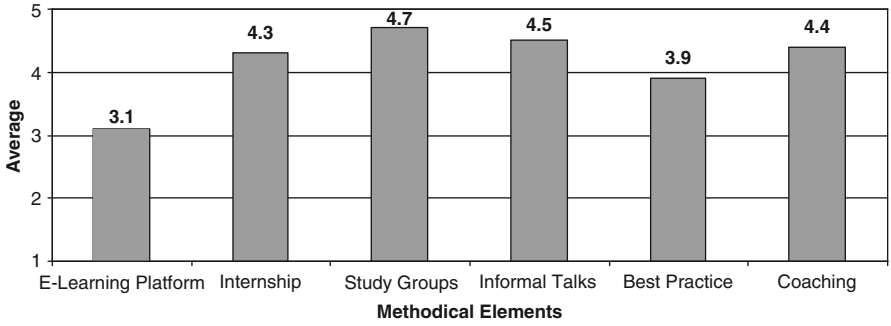

Fig. 5 Importance of methodical elements to the "learning from differences"

ences'?" Again, there was a 5-point scale used, ranking from 1—not important to 5—very important.

Figure 5 illustrates that some methodical elements seem to have more impact on the "learning from differences" than others. The highest averages achieve the study groups, informal talks, coaching, and internship. However, all methodical elements score a higher average than 3.

The last question on the survey was included in the survey in order to confirm the answers of the first question. "I would prefer to study exclusively with students from my own educational sector." The ranking on a 5-point scale was identical with the first question (1—full disagreement up to 5—full agreement). The answers underline—as Fig. 6 shows—the findings of the first question.

Besides the quantitative part, there was also a qualitative question included in the survey: "I remember the following learning experiences particularly well…." The answers include amongst others the following aspects:

1. Curious reactions of fellow participants to unfamiliar components
2. Variety of perspective
3. Insights into the structural conditions of one's own actions
4. Questioning prejudges

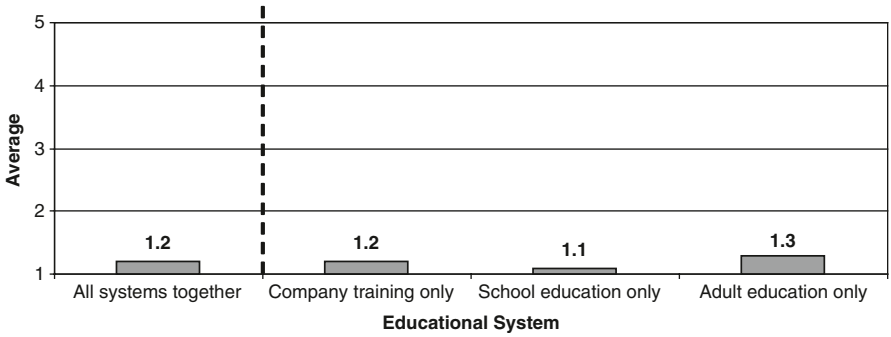

Fig. 6 Preference to study exclusively within own educational system

5. Collaboration in learning groups
6. Extensions in competence to take action
7. Encouragement of innovation
8. Enrichment of competence through the other systems

From our evaluation of the program, we also gained a lot of suggestions how to optimize the program. Most of these are related to special aspects which led to some fine-tuning within the modules or their didactical design.

At the beginning of each study course, there are always some participants who have the impression that their special field would not be covered enough within the program. But over the months, there is a positive development. Our data give evidence that at the end of the program nearly all the participants are very content with the implementation of the principle "learning from differences."

The most important lesson we have learned from this: Point out the challenges and chances of the principle "learning from differences" to the participants. Do this explicitly from the very beginning and repeat it regularly during the program.

But: to fully use the principle, it needs a kind of tension throughout the program. The perturbations, that we intend in order to start a learning process, necessarily generate these tensions. Partially students as well as trainers have to deal with them, so that a success can be achieved.

Summarizing our evaluation data, we point out that "learning from differences" achieves approval from the participants. Their opinion about the learning concept is positive (regardless their educational system). Most methodical elements that were included in the survey are rated "very important" or "important" for the "learning from differences." The replies to the qualitative question give an idea of the wide range in learning experiences in the context of "learning from differences." All evaluation findings encourage further investigation on the means of this learning concept. The following section describes first findings of another more extended evaluation-survey.

Study II: Development of Competence Through "Learning from Differences"

The study that is portrayed here is part of a PhD-research which is still in progress. In the following, we provide and discuss first results. The findings are based on the opinions of graduates of the program. Like this, the evaluation-survey helps to develop perceptions on a relationship of competence development and the principle of "learning from differences."

As described earlier, development of competence is an important value in a changing world. Therefore, this survey focused on the development of competence. Three classes of the master's study program in Ludwigsburg were asked to take part in the evaluation-study after completing their degree. Out of these 80 graduates, 49 completed the questionnaire. The evaluation is divided into two parts: at first we

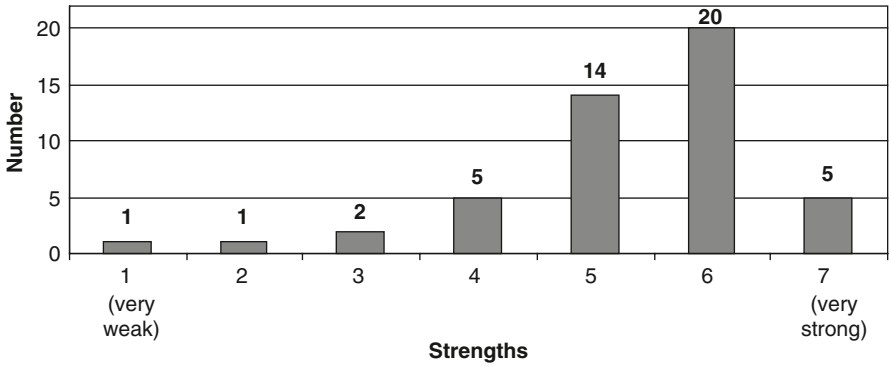

Fig. 7 Development of competence through "learning from differences"

analyzed the relationship between competence development and "learning from differences" and, secondly, we focused at methods which are related to "learning from differences" and their relation to the development of competence.

Following these parts the participants were first asked to rate their development of competence related to "learning from differences" on a 7-point scale (1—"very weak" up to 7—"very strong"). The question was phrased as follows: "How strong was your development of competence within the master's study program related to "learning from differences." The average answer result was 5.29. Figure 7 shows how many participants rated which strengths. It shows that out of the 49 graduates, 39 felt that their development of competence is related to the "learning from differences" and rated it 5 or above.

The next question focused on the competence with its different sub-competences[6]. The question was phrased in the following way: "How do you judge the effect of "learning from differences" on the development of your professional/methodical/social and personal competence?"

The findings indicate similarities within the different sub-competences. Some are pointed higher (professional and personal) than others (methodical and social), but these differences are within a small range. All averages are higher than 4.7, which can lead one to the presumption that there might be a strong effect of "learning from differences" to the development of competence. Figure 8 shows the exact findings.

The second step of the evaluation study centered on learning methods which are—in the master's study program in Ludwigsburg—related to "learning from differences." The methods internship, coaching, business game, and informal talks were chosen.

[6] The used categories of sub-competences are, for example, described by Erpenbeck (1999, pp. 157 ff.). Within the evaluation-survey, the sub-competences were illustrated and examples were added. This way, it was easier for the participants to correctly fill out the questionnaire.

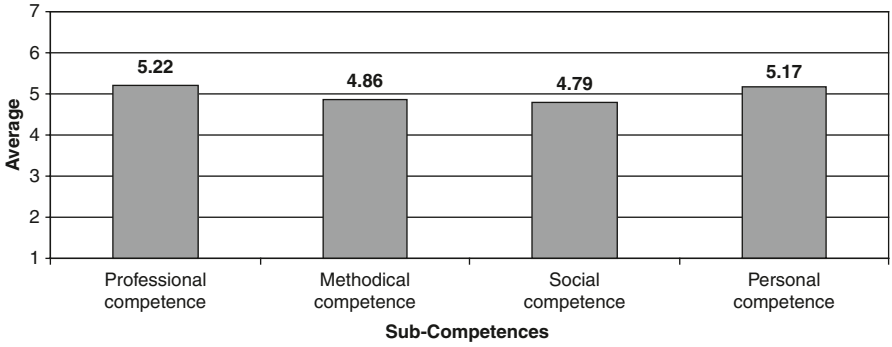

Fig. 8 Development of competence by "learning from differences"

The first interest was to find out more about the connection between the learning methods and "learning from differences." In this context, the participants were asked: "How strong was your development of competence within the internship (coaching, business game, informal talks) related to the 'learning from differences'?"

The findings show that in the participants' point of view, the development of competence within the coaching is strongest related to the "learning from differences" followed by the informal talks. The exact findings are drawn in Fig. 9.

The findings support that the four learning methods can be seen in the special context of "learning from differences." Fairly interesting is that the informal talks are placed at the second rank. Like this, informal talks should not be forgotten as a "learning method" in the context of "learning from differences."

Further questions focused on the different development of competence within the four learning methods from the participants' point of view. The findings show different emphasis within the development of competence. Like this, the internship

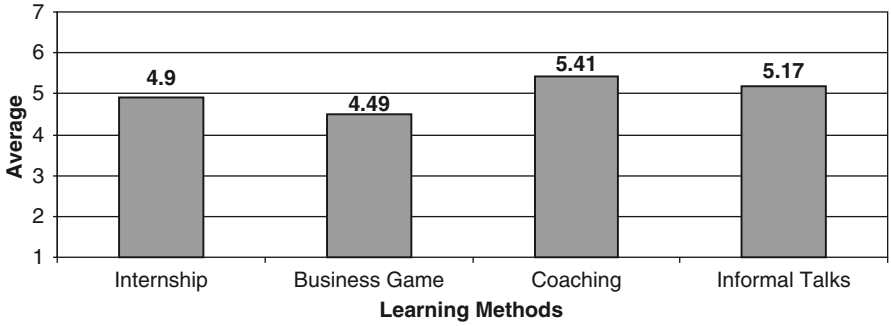

Fig. 9 Development of competence related to "learning from differences"

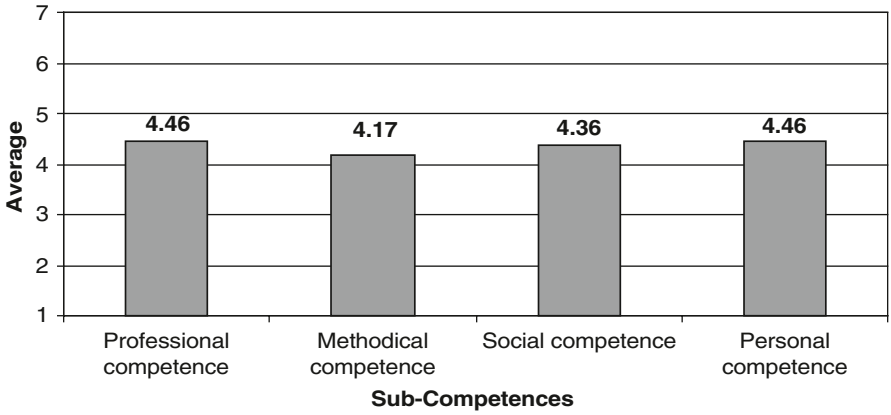

Fig. 10 Development of competence by the internship

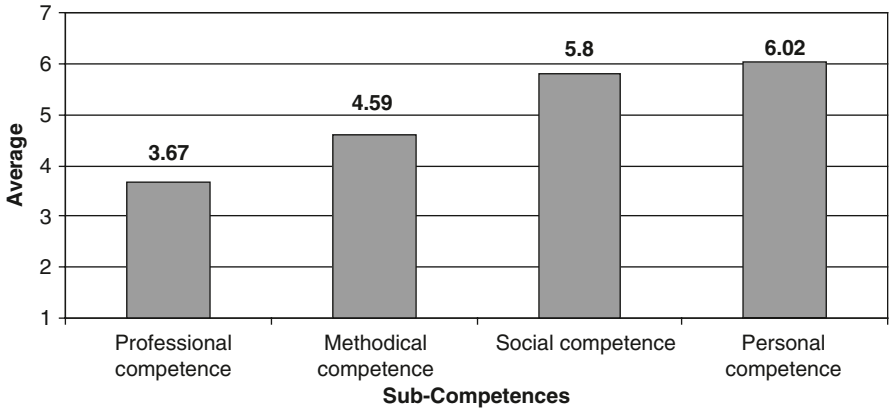

Fig. 11 Development of competence by the coaching

supports, for example, the development of all sub-competences in a similar way, while the coaching centers especially on the development of social and personal competence, as shown in Figs. 10 and 11.[7]

The findings of study one and two motivate, on the one side, to integrate this learning concept into managerial education and, on the other side, to expand the research-activity on this topic. Still it has to be pointed out that the discussed findings are all based on the opinions of the graduates of the master's study program. Like this, they can indicate first perceptions.

[7] For further findings see Krummenauer-Grasser (2010).

Outlook

This chapter has examined the chances of "learning from differences" as a principle for the design of management education. We described how a program can be designed and gave a report on feedbacks from the participants.

Having successfully completed five cohorts of the master's program for educational leadership at Ludwigsburg Pedagogical University we are now planning a new project. We will take part at the tender of the German Federal Ministry for Economic Cooperation and Development (BMZ), the German Academic Exchange Service (DAAD), and the Gesellschaft für technische Zusammenarbeit (GTZ). These three institutions want to establish a bicultural study program in educational leadership for participants from Germany and Egypt.

Both countries are involved in large development projects covering different fields of cooperation, one of which is education. The results of the programs, however, do not always meet the expectations. Missing competencies for educational leadership are supposed to be the reasons for the deficient efficiency of developmental programs in the field of education. Thus, the future master's program aims to develop the participants' competencies for leading educational organizations like schools or departments of human resources management in companies. For this purpose, a new curriculum and a new didactic design have to be developed. For this purpose, lessons can be drawn from the experiences of the ongoing master's study program. "Learning from differences" might be helpful as well.

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Changes and Trends in Cross-Cultural Management Education: An Integrative Approach

Bernadett Köles and Tibor Vörös

Introduction

We live in a world characterized by increasing globalization; our borders are no longer real boundaries; our economies are increasingly intertwined; we compete for resources and markets in a global marketplace; our technological innovations and advancements make it possible to work in one country, yet efficiently do business in another; multinationals keep expanding across the globe, and even our domestic firms are increasingly affected by global interdependence (Keating and Byles 1991; House 2004). These trends of internationalization and globalization are not novel phenomena. Over two decades ago, similarly to several other scholars and business leaders, John Young, former President and CEO of Hewlett-Packard, highlighted the need for business schools to incorporate an international management perspective, arguing that "…the rest of the world is just too big to ignore, either as a market or as a competitor" (Young 1987, p. 3).

Companies today not only expect their employees to fit the overall profile of the organization and have the necessary know-how and skill set in their given area of expertise, but in many cases to also be able to travel and participate in international projects and work teams. In other words, organizations require many of their current and prospective employees to successfully cope with the challenges posed by such a global marketplace. Understanding these trends and in response to the associated shifts in demand on behalf of business school students and their future employers, many business schools decided to further internationalize their curricula (Kwok and Arpan 2002; Edwards et al. 2003). Additionally, certain accrediting bodies (e.g., AACSB International—Association to Advance Collegiate Schools of Business) require that business schools address the issue of international business content in their curricula for the purposes of accreditation.

Educators as well as practitioners play an important role in providing their audience with a timely and relevant knowledge base, with business themes, as well as

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with relevant skills necessary to function in an international marketplace. In addition to their own subject matter, instructors need to be aware of and up to date with the latest developments and changes prevalent in areas characterizing cross-cultural management, understand their potential impact on their field of expertise, and successfully incorporate these elements into their educational framework.

We begin our analysis by examining current perspectives and particularities associated with multicultural and cross-cultural education, along with prevalent models influencing curriculum composition and development in higher educational institutions. As the most obvious point of departure to understand concepts specific to this field is rooted in the relevant literature and body of research, we review some trends and provide case illustrations, with particular attention to their relevance for educators and practitioners. Finally, we assess current practices in multicultural education, and offer some integrative techniques and practical methods for institutions to assist them in their potentially desirable attempts to further internationalize their curricula.

Multicultural and Cross-Cultural Education

The distinction between the terms "cross-cultural" and "multicultural" within the realm of research and education is not an obvious one. On the one hand, multicultural research tends to emphasize the cultural, ethnic, and racial diversity within a given nation or social group. On the other hand, cross-cultural research extends beyond the boundaries of individual nations or social groups, and is concerned with the interaction and exchange across different cultures (Brehm et al. 2005). Thus, one may say that multicultural studies tend to take an integrative perspective, while cross-cultural studies tend to take a comparative approach.

Multicultural education is not a novel idea: its roots date back to the time of the civil rights movements initiated by various historically oppressed groups in the United States, who challenged discriminatory practices and conducts of public institutions during the 1960s (Banks 1989; Davidman and Davidman 1997). Following these historical movements and their associated consequences, a common and widely accepted understanding of multicultural education emerged; one that addresses the rapidly changing demographic composition of classrooms by promoting democracy and equal chances for an increasingly diverse student body. Within this framework, Nieto (2000) provides a comprehensive definition, stating that multicultural education is "…a process of comprehensive school reform and basic education for all students. It challenges and rejects racism and other forms of discrimination in schools and society and accepts and affirms the pluralism (ethnic, racial, linguistic, religious, economic, and gender, among others) that students, their communities, and teachers reflect. Multicultural education permeates the schools' curriculum and instructional strategies, as well as the interactions among teachers, students, and families, and the very way that schools conceptualize the nature of teaching and learning. Because it uses critical pedagogy as its underlying philosophy and focuses

on knowledge, reflection, and action (praxis) as the basis for social change, multicultural education promotes the democratic principles of social justice" (p. 305). Nieto's conceptualization places multicultural education in a paradigm which necessitates an integrative approach; one that emphasizes pluralism and concentrates on the promotion of the fruitful coexistence of cultures within a society.

Many cross-cultural studies evolved alongside the multicultural ones, with large comprehensive bodies of research initiated from the early 1980s (e.g., Hofstede 1980). Most likely influenced by the increasing trends of globalization and the significant breakthroughs in communication within the past few decades, the distinction between these two constructs has become blurred, with many scholars in various fields of study using the terms interchangeably (e.g., Egan and Bendick 2008). In addition, lessons learnt from multicultural education can be easily applied to cross-cultural education as well; interpreted as an education to support and further enhance the interaction among members of different cultures. In the next section, we elaborate on this matter, by examining ways in which institutions incorporate subjects and ideas associated with cross-cultural management, in an attempt to enhance their international scope through their offerings.

Curriculum Shifts in a Globalizing World

In response to the challenges posed by globalization, many undergraduate, graduate, as well as executive programs introduced courses aimed at providing participants with cross-cultural management awareness and practices. In many institutions, elaborate discussions focusing on the internationalization of the curricula emerged (Fugate and Jefferson 2001). The primary and most commonly cited aim underlying curriculum internationalization places a strong emphasis for graduates to gain the abilities necessary to operate internationally (e.g., Toyne 1992; Francis 1993; IDP Education Australia 1995; Whalley 1997). In addition, numerous papers focus on reviewing different approaches for curriculum internationalization on an institutional as well as on a program-wide level, by referencing examples derived from case studies of specific universities (e.g., Schapper and Mayson 2004; Crosling et al. 2008).

Edwards et al. (2003) argue that while generic goals for internationalizing the curriculum have been defined, the currently available literature provides limited guidance concerning the operational steps to be taken by institutions. In order to fill this gap, the authors developed a 3-stage model designed to link individual curricular components and subjects with different degrees of internationalization practices. The three levels of this model, along with teaching strategies, teaching methods, as well as intended learning outcomes on each of the three levels are presented in Table 1.

In their evaluation of current practices at higher educational institutions, the authors note that most universities tend to concentrate on the first two levels; enabling students to think more critically and reflectively about their cultural beliefs and

Table 1 A typology of curriculum internationalization. (Adopted from Edwards et al. 2003)

		Teaching strategy	Teaching method	Outcome learning
Level 1	International awareness	Infusion of international perspective in general curriculum	Supplement existing curriculum with international examples; recognize origins of knowledge	Students expect and respect differences, have an international attitude
Level 2	International competence	Engagement with the specialist international dimension of the discipline	Add international study options, have students engage with international students, in-depth study of international subjects	Students are capable of performing their profession for international clients
Level 3	International expertise	Immersion of students in international study	Study (possibly in a foreign language), live and work in international settings	Students become global professionals, at home in many locations

assumptions; challenging and subsequently transforming their perspectives; and finally providing them first hand exposures to cross-cultural interactions. An additional asset aiding this process may come from the heightened diversity of the student body, as cross-cultural interactions will be practiced with more frequency and ease in richer environments. In sum, students benefit from the knowledge and skills characterizing the levels of international awareness and international competence, as they become more able to successfully interact with members of different cultures, and they also may be more appealing as an employee or a team member for an international client (Edwards et al. 2003; Crosling et al. 2008).

The third level of the model, namely international expertise, is more challenging to implement for educational institutions, as dual degree partnerships and other structured international program elements are necessary to establish with schools from other countries. These processes often imply lengthy negotiations, potential curriculum modifications, as well as program reaccreditation. A particular challenge arises for those institutions serving a large student body, as these schools will need to employ a greater number of partnerships and agreements to fulfill the demands of their students. Nevertheless, the benefits from the perspective of the students are immense. Edwards et al. refer to these culturally immersed students as "global citizens" and "global professionals" (2003).

This model is quite useful for universities in their attempts to internationalize their curricula, as well as in setting appropriate goals for themselves throughout the process. The growing complexity across the three levels enables universities to plan ahead, and take incremental steps; an approach that tends to be easier to control, manage, as well as evaluate. For the remainder of our chapter, we will concentrate primarily on providing tools and working practices corresponding to the first two

levels of the Edwards model, as those are the areas where faculty members and academic personnel are likely to have the most immediate and direct impact.

From an implementation perspective, most attempts towards program and curriculum internationalization begin with approaches intended to raise students' cultural awareness. This is done primarily through the introduction of cross-cultural elements into courses in communication, management, and other subjects already present in the existing curriculum. For this step, it is important to be aware of relevant and up-to-date research in the available literature. This initial process relies quite heavily on the dissemination of research results, and the need for their application to a practice oriented classroom environment. In the next section, we turn to a brief overview of a few particularly influential bodies of cross-cultural research, along with their implication for educators and practitioners. Through this review, we note some specifically important aspects and characteristics of relevant studies and approaches. Finally, we recommend certain integrative methods and techniques to enhance the repertoire available to be utilized in attempts of curriculum internationalization.

Cross-Cultural Management Research

Culture and its impact on organizations, managers, and leaders has been a widely studied concept. The most commonly cited research in this context comes from Hofstede's work (Hofstede 1980). His framework forms a common basis for cross-cultural discussions in university management courses, and it has been cited in a large number of different management related academic studies (Kirkman et al. 2006). Most, if not all of the textbooks focusing on topics associated with international management make reference to this particular body of work, and Hofstede's ideas have been equally influential for practitioners and scholars.

Initially, Hofstede (1980) surveyed 88,000 IBM employees in numerous subsidiaries, and based on his data, classified 40 nations along four major cultural dimensions: individualism/collectivism, masculinity/femininity, uncertainty avoidance, and power distance (Hofstede 1980). Among the numerous follow-up works, the GLOBE study is one of the most comprehensive ones, investigating various cultural constructs in 62 nations (House et al. 2004).

The primary aim of the GLOBE study was to investigate the impact of culture on leadership and organizations, through multiple lenses. Thorough analysis is provided for various dimensions including performance orientation, humane orientation, in-group collectivism, institutional collectivism, power distance, future orientation, assertiveness, and gender egalitarianism. A brief description for each of these constructs can be found in Table 2.

Cross cultural projects, such as the ones developed by Hofstede or the GLOBE study, represent an immense value for researchers as well as practitioners and professionals. The knowledge base they provide allows individuals from various parts of the world, as well as from different types of organizational climates, to work

Table 2 Brief description of GLOBE study dimensions (2004)

Dimension	Description
Performance orientation	"Measures the extent to which a society or an organization encourages the practice of rewarding performance improvement and setting challenging goals, and the extent to which the respondents value these practices" (p. 246)
Humane orientation	Measures the extent to which an organization engages in humane orientation practices; including constructs of "being concerned, sensitive toward others, friendly, tolerant of mistakes, and generous" (p. 571)
In-group collectivism	Reflects the degree to which people have pride and loyalty in their families and organizations
Institutional collectivism	Includes laws, social programs, or institutional practices designed to encourage collective behavior
Power distance	Measures "the degree to which members of an organization or society expect and agree that power should be shared unequally" (p. 537)
Future orientation	Measures the extent to which a society actually engages in and should engage in future orientation practices
Assertiveness	Measures "the extent to which a society engages in assertiveness practices, (…) and the extent to which a society exhibits assertiveness values" (p. 407)
Gender egalitarianism	Distinguishes among societies that seek to minimize as opposed to maximize gender-role differences
Uncertainty avoidance	Measures "the extent to which life is structured, predictable, orderly, and consistent, and rules and regulations to regulate societal practices are emphasized" (p. 619)

efficiently with one another. In addition, the appropriate and careful interpretation of the findings may shed some light on important items, such as the extent to which certain managerial characteristics and leadership styles are effective within various cultural contexts.

The relevance of such cross-cultural types of research is obvious, particularly considering the current trends of globalization and heightened complexity in the marketplace. Unfortunately these studies are relatively scarce, due to the fact that they are difficult to carry out, particularly in a longitudinal fashion. They require a large network, a great amount of time, as well as personnel, cost, and other resources. Nevertheless, such studies provide a great comparative base onto which other researchers may build their follow-up works and potential extensions.

The establishment and respective dissemination of knowledge-related to cross-cultural variations is important, and appropriate channels are necessary in order to reach the interested academic and organizational audiences. In the following sections, we highlight some of the important and influential elements characterizing this complex and at times challenging journey of connecting the research itself to the educational and organizational consumers. For our illustrations, we provide examples from Central and Eastern European countries, with specific emphasis on Hungary. This particular area provides a good base for discussing the impact of culture and the associated challenges of measurement and understanding, due to the

fact that in these cultures, in addition to global effects relevant to all markets (such as those deriving from the current economic crisis), there have been simultaneous internal forces at work during the past two decades—including political as well as economical shifts—moving these countries from centrally planned economies to free markets.

Country Clustering in Research

Various research studies, particularly the ones using a large number of participating cultures, tend to rely on country clusters when investigating the impact of culture on various areas of management. More specifically, many of them refer to the countries composing the Central and Eastern European (CEE) region as one cluster, which is not surprising based on the obvious geographical and shared historical elements. While we recognize that such grouping of individual countries based on some criterion is understandable from an organizational and pragmatic point of view, it still may seem a bit arbitrary in some instances. Such clustering approach has been shown to sometimes lead to a certain loss of information, as well as to a potential overgeneralization of findings (Karácsonyi 2006). Furthermore, it appears that there is uncertainty regarding the actual composition of some clusters, including that of the CEE, as evident in the variation in cluster member states across different research studies (Köles and Vörös 2009b).

As an example, within the framework of the GLOBE study, the CEE cluster included Hungary, Russia, Kazakhstan, Albania, Poland, Greece, Slovenia, and Georgia (Gupta and Hanges 2004). The authors recognize and note the novelty of this particular cluster, as well as the lack of previous scholarly work available on the region, mostly due to the limited information prior to the political turnover. Another research project, focusing on various leadership prototypes conducted by Brodbeck et al. (2000), arrived at a quite different clustering scheme, placing Hungary in the Latin European group, together with Spain, Portugal and Italy. This apparent variation associated with the makeup of clusters may lead to potential confusion or even unnecessary stereotypes concerning the actual characteristics of a given culture, as well as the potential expectations of what it may be like to conduct business in that country or within a specific region.

Information Inequality: Geographic and Temporal Segmentation

There is an apparent information inequality with respect to research data in the available literature along the geographic and temporal dimensions. From a geographic standpoint, numerous studies investigate culturally relevant questions mostly in Western societies (e.g., Ronen and Shenkar 1985; Haire et al. 1966), many focusing on the Nordic European, Latin European, and the Anglo-American clusters. Many

other areas, including the Central and Eastern European, African, and even Asian countries, generally used to be excluded from such research due to various reasons.

From a temporal perspective, the CEE member states serve as good examples for a region where detailed studies were fairly sporadic, with limited international exposure prior to the 1980s. After the political turnover following the Communist Era in 1989, many scholars have begun to investigate various management related questions in the CEE region as well. Apart from scholars, foreign organizations and multinationals became interested in this formerly excluded part of Europe, and many began operations throughout the entire region. Questions were raised concerning the extent to which value systems and managerial approaches of expatriates placed to lead the Hungarian branches may be imposed upon and internalized by the local workforce. Similarly, academics were interested to investigate whether, and if so to what extent, Western management trends and practices would be adequate in the CEE region (Elenkov 1998). According to one line of thought, the legacy of central planning was expected to maintain its influence on managerial values, practices, and systems for many years to come (Danis and Parkhe 2002). However, it was also understood that establishing appropriate values, practices and systems are a requirement in the transformation as well as the knowledge development process (Lyles and Salk 1997).

Following an era of great reliance on expatriates, foreign organizations operating in the CEE countries in many cases were able to gradually shift responsibilities to the local management, while maintaining some reduced oversight by representatives of the foreign organization. After the initial excitement associated with the opening of a previously closed and excluded market characterizing the CEE region, the view concerning these post-transition countries has been shifted to one that is more aligned with Western ideologies, no longer warranting so much individualized attention, and once again yielding less abundant research output.

Culture—Static or Dynamic

The extent to which cultural characteristics may be viewed as stable constructs is a constantly revisited notion in the literature (Köles and Vörös 2009a). Many studies are in line with Hofstede's initial view, suggesting that rapid changes and convergence are not likely to take place in a short time period (Daller and Yildiz 2006). In his more recent work, Hofstede extends his original findings, proposing that external influences on culture, particularly those related to economic changes and evolving trade patterns, can shift cultural perspectives (Hofstede 2001).

A rather intriguing example supporting this latter view may be derived from examining the changing nature of power distance in Hungary, in light of the GLOBE study results. The GLOBE data collection in Hungary was an ongoing process, taking place between 1995 and 2005. The data have been analyzed on two occasions: first, using the 1995–2002 period (Gupta and Hanges 2004), and then using the entire aggregated dataset, including the longitudinal element (Karácsonyi 2006).

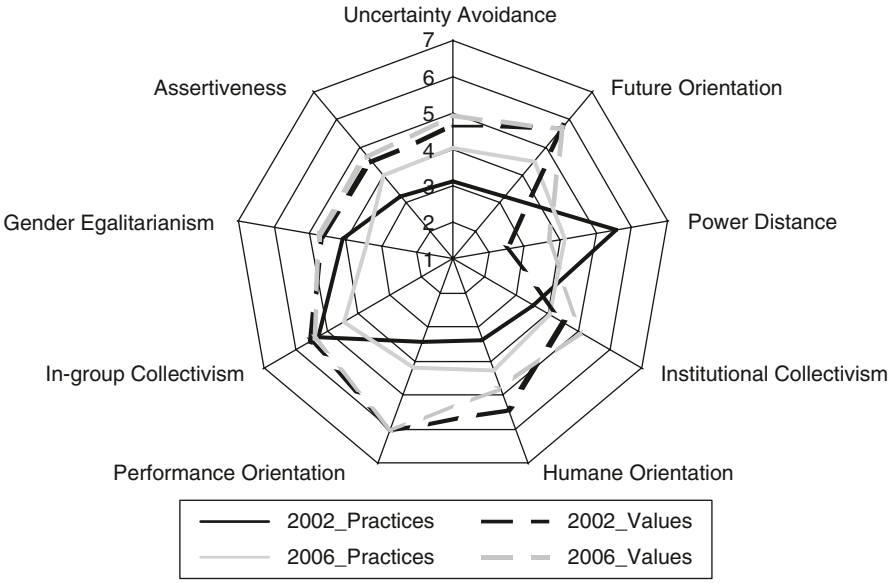

Fig. 1 GLOBE Hungarian societal scores in 2002 and in 2006. (Data compiled from Gupta and Hanges 2004 and Karácsonyi 2006, respectively)

The GLOBE study employed two sets of scales for each of the nine dimensions, as described in Table 2; one assessing managers' perceptions concerning the current situation (*practices*), and another one assessing managers' perceptions concerning the ideal scenario (*values*). Dimensions are measured on a 7-point Likert-type scale, ranging from 1 (minimal) to 7 (very prevalent). Figure 1 presents the overall results from the 2002 GLOBE analysis, as well as the 2006 follow-up data specifically for the case of Hungary, in each of the nine dimensions.

The 2002 data illustrate quite a bit of a discrepancy between the perceived and desired values in most dimensions. The most significant discrepancy can be observed along the power distance dimension, where the desired value (2.49) was substantially lower than the actual value (5.56). This high score placed Hungary to be the 12th highest overall in the GLOBE comparative analysis across all participating countries, within the worldwide range of 3.89–5.80; as well as the highest within the CEE region (Carl et al. 2004). What is particularly interesting to note here is that such a high perceived power distance score appears to be associated with an unusually low desired value of power distance (Bakácsi et al. 2002).

As illustrated in the 2006 follow-up results, quite substantial shifts may be observed in many of the reported practices, which may be attributable to a number of factors associated with the transition process moving Hungary from a centrally planned to a market economy; including economic changes, technological advancements, systemic changes, as well as modifications of cultural beliefs and value systems. Interestingly, most of the desired values remained the same as in the first round of analysis. The only exception to this trend can be seen along the power distance dimension, which was

quite surprising. Not only was there a downward shift in the actual reported practices scores (to 4.11, now much closer to the worldwide average of 4.01), the desired values also increased substantially (to 3.63, with the worldwide average of 3.56).

Based on these findings, it appears that as people over time observed and experienced a decrease in the power gap, and the collective memory of the high power gap gradually diminished, members of the society appeared to realign their expectations, as evident in the shift with respect to the desired power gap towards a value that was much closer to the worldwide average. Therefore, the relatively rapid changes apparent along this dimension could suggest that the initially high results on the power distance dimension were most likely due to reasons associated with systemic legacy, rather than originating from a long-held and deeply embedded cultural trait.

This example illustrates well that one needs to be rather careful when drawing conclusions and making generalizations from data and research findings obtained at any given time. When there are numerous forces at work, such as in the case of Hungary in the past two decades, it is hard to anticipate the consequences and the timeline of potential change associated with such a complex transition process. Although the complexity of this particular Hungarian process was useful to highlight the need to carefully investigate the situations of individual cultures, change is something all countries and nations are exposed to and need to deal with in today's society. For example, in addition to market conditions, Hall and Hall (1990) consider communication as one of the most significant influencing factors on culture. More specifically, the authors suggest that as the World Wide Web provides easy access to new ideas, thoughts, and realities, global shifts are likely to affect culture to a greater extent, and such external forces are likely to initiate changes similar to those observed in the Hungarian example.

Implications for the Educator

In the previous sections, we have reviewed certain aspects characterizing the journey between research and educational settings. Throughout this analysis, we have identified some challenges and associated consequences, as well as highlighted potential ways in which to overcome them. Table 3 provides a brief summary for the key points discussed as well as recommendations. As many discussions and recommendations in future sections of this chapter make reference to the appropriate usage of content-related and educational elements, some of the suggestions and practices noted in this table will be relevant for later discussions as well.

Educational Methods to Support Internationalization

Following our extensive discussion of aspects associated with the dissemination and appropriate usage of research in cross-cultural management courses, we now return to the Edwards' typology (2003) and identify various tools and integrative

Table 3 Challenges and proposed solutions when applying cross-cultural management research in an educational context

Key points	Consequences	Recommendations
Ambiguity in country clustering	*Carry-over effect* Participants may assume that countries within a given cluster share more characteristics than examined in the relevant research	*Diversification* Use a variety of clustering from the literature to ensure that clusters are not viewed as a single entity *Participation* With internationally diverse audience, take advantage of this valuable asset and draw on their own knowledge and experience
Unequal distribution of research and knowledge in different space and time	*Shifts in emphasis* More emphasis may be placed on certain geographic areas or specific time periods, due to the greater abundance and availability of research	*Awareness* Bear in mind this inequality when identifying examples *Multi-method approach* If you do not find all materials relevant for your instruction in one textbook or through one case, utilize a variety of sources and methods (relevant guest lectures, videos, illustrations from other disciplines) *Emphasis* Ensure your students understand this notion, and do not dismiss certain times or places as irrelevant
Dynamic view of culture	*Instructional materials* Material presented in textbooks and case studies may become outdated relatively quickly	*Continuous updates* Provide up-to-date course content and materials, trying to avoid using outdated materials *Case studies* Supplement textbook materials with recent research papers and relevant case studies to provide a more comprehensive view of cultures of interest *Personal examples* Encourage students to openly discuss and debate their own viewpoints and perspectives; moderate the discussion, and highlight certain examples to avoid stereotypes

methods from which educators and professionals may benefit in their attempts to enhance the international experience of their students. As mentioned above, we concentrate on the first two levels of the Edwards model only, and thus methods applicable to the third level, namely international expertise, will not be discussed in this chapter. As this complex process requires coordinated efforts and cooperation among various organizational members beyond faculty and academic personnel, direct academic influence over it may be more difficult, particularly during the early phases of development.

Building on our academic and professional experience, as well as exposure to various institutions, in Table 4 we list some of the most commonly used methods intended to enhance students' cultural awareness and competence. A brief description is provided for each approach, along with the associated level of complexity from an organizational as well as curricular standpoint. Compilations of this sort are beneficial for institutions and organizations aiming to assess, prepare, and plan their course and scope of internationalization. As we progress through the list of items, we observe an increase in the level of complexity as well as required input. This notion also should be helpful for institutions, as availability of resources and potential budgetary constraints may be taken into account throughout the planning process.

Understandably, most institutions in the initial phases of internationalization tend to concentrate on low complexity methods—both from the curricular and the organizational points of view. Consequently, the most typical items available for students at these universities include exposure to cross-cultural case studies in their existing core courses, or enrollment in a specialized course like international business, delivered by an expert in the area of cross-cultural management.

When using case studies and other instructional materials to bring the cultural component to specific subject areas, one can choose from several databases. Leading universities and Ivy League schools tend to produce a great number of cases each year, allowing instructors from universities worldwide to benefit from their knowledge and expertise. However, there are a few things we need to point out when using case studies. First, the appropriate handling of case studies and their use as instructional tools is quite a complex task, which may not be obvious for many faculty members and professionals. Thus, universities should ensure that they provide necessary training for their professors, particularly the more junior ones and those who may have had less than optimal prior exposure to case studies in their careers. This is an issue that considers instruction in general, and is not specific to the area of cross-cultural management.

A second issue to consider lays in the overall aim of using cases. There are many case studies which are multicultural in the sense of building on the interaction among international entities. However, many of them do little to actually discuss cross-cultural issues. As a result, a lot depends on the way in which the case is presented and discussed in the classroom, and instructors often are required to provide supplementary information to understand the cross-cultural nature of the particular situation more fully. If these elements are not discussed appropriately, their intended contribution even to the cultural awareness level may be less than expected or desired.

Finally, similarly to a challenge identified with respect to the availability of research studies and the potential geographic and temporal inequality, there are certain countries and cultures where case studies are less likely to be initiated and produced. This is unfortunate, as case studies focusing on underrepresented areas would provide an immense contribution to the available literature and research, and would assist in attempts to try to minimize and avoid stereotypes. Hopefully as an increasing number of programs include case studies, more faculty members will be

Table 4 Educational methods to support international awareness and competence

Level	Method	Description	Organizational difficulty	Curricular difficulty
Level 1 Cultural awareness	Cross-cultural elements	Include cross-cultural examples, case studies or research assignments into an existing course	*Minimal* Requires individual faculty expertise	*Minimal* No change necessary in credit allocation
	Cross-cultural courses	Incorporate a limited number of specific cross-cultural courses into the curriculum, e.g., cross-cultural communication	*Minimal* Requires individual faculty expertise	*Minimal* Slight modification in curriculum composition and credit allocation may be required to allow the inclusion of the course(s)
	Short-term visiting programs and study tours	Initiate short-term (usually 1-week) visiting programs and/or study tours hosted by foreign universities Establish short "cultural weeks" locally	*Moderate* Requires logistical support and coordination Trip itself could be organized and managed by individual faculty member as part of a specialized course Often implies extra costs for students	*Moderate* Requires supervision, dissemination of results and credit allocation
Level 2 Cultural competence	International collaborative projects	Initiate projects and other forms of interaction for students with participants from other cultures, either through collaboration with foreign universities or through multinational companies	*Moderate* Requires logistical and often technological support Requires individual or group of faculty expertise	*Moderate* Requires supervision from both academic or professional entities Evaluation and credit allocation could be challenging
	Simulation exercises	Establish business simulation exercises including role play, emphasizing elements that highlight cultural differences Works most optimally with a diverse student body	*Minimal to moderate* Varies by complexity of simulation (including content or technology requirements) Requires individual or group of faculty expertise	*Moderate* Requires supervision from both academic or professional entities Evaluation and credit allocation could be challenging

encouraged to and rewarded for the development of case studies on topics relevant for their own culture of expertise.

The next instructional tool that is most widely used for the purposes of curriculum internationalization is based on specific cross-cultural courses, such as cross-cultural or intercultural communication and cross-cultural negotiation. Through an overall assessment of these standalone courses, from content, learning outcomes and skill set viewpoint, Perkins and Salomon introduced the Bo Peep theory of transfer (1992). The authors in their arguments highlight the underlying assumption of educators that skills learnt in one course (such as cross-cultural communication) will automatically be applied to any other course or situation, if and when required (for example, when discussing a cross-cultural merger).

However, as supported and indicated through various experiments, the authors argue that this anticipated transfer does not necessarily occur in the absence of blatant similarities between the originally acquired task and the transfer task (Perkins and Salomon 1999). Indeed, many scholars recognize that specific cross-cultural courses do not prepare individuals adequately to successfully perform in interactive cross-cultural situations, ranging from a single negotiation to complex management endeavors, unless an experiential context is included (Black and Mendenhall 1989). Experiential elements and increased task diversity encompassing various distinct situations can be of great help in overcoming and avoiding this transfer problem.

Thus far, we have discussed instructional elements that focus on individual courses. While it is clear that from an organizational and curricular point of view these methods are relatively easy to implement and manage, they do present an issue with respect to disciplinary silos. In particular, in line with the transfer problem mentioned above, when discussing certain cultural material in a given course, students may not be able to apply them in other courses, and thus may obtain a rather segregate knowledge as opposed to an integrative one. The desirable experiential component also may imply that the instructor has expertise across various disciplines, which is often not the case, nor can be a reasonable expectation.

In sum, although case studies and standalone courses are inarguably valuable and represent steps in the right direction for curriculum internationalization, they still are likely to fail in fully capturing the complexities of cross-cultural topics. A good yet potentially challenging solution may come from the *integrative implementation* of the methods outlined above; where the term "integrative" is used to emphasize not only the overall curriculum design, but also the cross-disciplinary element ideal for cross-cultural education. Although the idea of an integrative approach is not a recent one (e.g., Keating and Byles 1991), its implementation across disciplines has shown to be a difficult and rather laborious task (Crosling et al. 2008; Clark 2002). The basic idea of integrative approaches entails building on these more individualized instructional methods outlined above, with a given instructor, or more likely a group of faculty members coming together and collaborating. These resulting integrative techniques are useful as they have the ability to provide students with a more well-rounded and extensive understanding of cultural issues.

In our own practice, we found that developing an interdisciplinary theme along with the simultaneous exposure to cross-cultural issues via business simu-

lations appear to be effective in providing students with a more comprehensive cross-cultural education within an interdisciplinary framework. In the next section, we describe our ideas and practices for an integrative approach in more detail. We also argue that while the individualized instructional methods tend to target the enhancement of students' cultural awareness only, through appropriate and carefully planned integrative methods, it may be possible to provide students with the cultural competence identified by Edwards et al. (2003) in their second level.

Our Own Practice—An Integrative Approach

The Central European University as a whole is particularly well suited for providing an optimal blend of multicultural and business simulation environments deriving from its uniquely diverse student body; on average, of a group of one hundred students, there are approximately 40 different countries represented, encompassing a wide range of nations and cultural backgrounds from all over the world. Such diversity provides optimal grounds for participatory and interactive learning, with all members contributing to discussions with unique insights and first-hand experience based on their own cultural heritage.

While this extent of diversity tends to be fairly rare and exceptional in an international comparison, particularly considering the relatively small size of the institution itself, most schools today enjoy various degrees of multicultural composition present in their student body, providing ample grounds for the utilization of the recommended educational tools. In the following sections, we describe and highlight some techniques and integrative instructional methods from our own practice that proved to be greatly successful across our various programs and have enriched our students' experience, overall preparation and training.

Interdisciplinary Themes

In our practice, we identified certain interdisciplinary themes intended to run through the entire length of our 60-credit MBA program completed during the course of one academic year. The careful design was initiated by a group of core faculty members, who discussed the purpose, content, as well as the implementation plan with various other constituencies, including staff members and students, in order to solicit their input. Following several rounds of discussions and extensive research, we have introduced a transnational leader (TNL) theme into our MBA curriculum; consisting of a 12-credit year-long course (including a 3-credit simulation element), and running alongside the other core program components. The TNL encompasses a number of courses; namely business and public policy; the international legal environment; critical thinking; transnational business context;

ethical leaders and responsible business; creativity without borders; transnational negotiation; and finally transnational strategy.

Faculty members teaching any subject matter on the TNL are expected to work closely alongside other TNL instructors, as well as those colleagues who are simultaneously delivering core courses in other subjects, in order to ensure the most optimal synergies across TNL topics, as well as between the core and the TNL subjects. The many waves of discussions and collaborative planning provided other benefits; namely, instructors in most core subjects began to utilize materials and often even share case studies with representatives of other disciplines. This in turn raised instructors' awareness of the interrelatedness among various subjects, as well as increased their ability to provide different lenses and angles through which to examine a particular topic or problem.

In terms of evaluation, even after the first year of implementation, this particular theme has shown to be successful and well received by our students, and appeared to work particularly well for an MBA audience. This "collaborative theme" method addresses the issue of integrating rather than segregating disciplines, and thus aims to provide more ample preparation for students in their attempts to tackle the demands of the increasingly team-oriented and project-based global marketplace.

Business Simulations

Utilizing various games and situational exercises in multicultural education enjoys a long history, ranging from relatively simple introductory tasks to more complex role-playing games like Bafa-Bafa (Benns-Suter 1993; Hansen and Williams 2003). However, game-based learning is an issue that has been widely challenged based on the various failed approaches. Particularly in the so-called edutainment (education and entertainment) software sector, several applications have been produced which inherited the worst of both parents; from the game industry, mostly boring game features were borrowed and used as a base. From the educational side, the primary focus was on "drill-and-kill" learning approaches (Papert 1998), yielding to a rather dismal experience for those participants who actually intended to learn. Despite these early difficulties, the situation improved substantially, and simulations (both computerized and non-computerized ones) have been utilized increasingly in various educational settings, proving to be generally effective tools to enhance students' learning experience (Lean et al. 2006). Particularly in cross-cultural training, the added value of simulation projects is considerable (Wills and Clerkin 2009; Volkema and Rivers 2008; Lewis 2005).

In our practice, we initiated a careful search for appropriate simulations which would enable the right approach. Our aim was to find an optimal solution that did not merely dispense cultural information to students, but instead immersed them in cross-cultural situations. At the same time, our interdisciplinary approach required a simulation tool that would enable the incorporation of materials across

disciplines. At the end of our extensive exploration, we created a new course called "Boardroom Executive Exercise" (BEE). The BEE is aimed at introducing vertical and horizontal integration through the core modules and organizational/management layers. It emphasizes the need for transformational and system-wide process-oriented thinking, as well as enables the inclusion of cross-cultural elements. After much consideration we have opted for a two-pronged approach:

- A turn-based, computerized management level business simulation—including supply chain, finance, pricing, and marketing as key questions (Global Challenge simulation)
- A storyboard-based, board level situational exercise—including higher level problems in the areas of ethical, environmental, social, and long-term strategy matters within the cross-cultural context—Central European Energy Corporation (CEEC)

From the operational point of view, students have to complete most of their core courses before starting with the Global Challenge simulation in January. They finish the simulation and the dissemination of results takes place in April. Then the CEEC simulation starts and lasts till the end of the semester. In the following sections, we briefly summarize these experiential elements.

Global Challenge Simulation

This computer-based solution was created by Cesim Ltd. (www.cesim.com); developers coined the name "Global Challenge simulation" for this particular simulation. Students form small groups with no more than 5 members each. These groups are supposed to act as managers of a fictive organization. In our particular example, these groups constitute the board of directors of a major mobile handset producer located in the USA, whose responsibilities include the oversight of the operations. During the setup, this company is expanding into European and Asian markets. Such moves imply different marketing, as well as different product and coverage expectations.

Boards have to make decisions about key managerial issues on the basis of actual financial statements and consumer behavior, while competing against each other within given markets. This is an excellent solution for enabling students to better understand complex management scenarios. However, as the initial starting point is the same for all competing boards, namely being an American producer moving into foreign markets, cross-cultural situations remain more illustrative rather than immersive. As a step to go beyond the more descriptive nature inherent in the initial tasks and obtain further skills appropriate for the next level of international competence in the Edwards model (2003), this basic awareness level is supplemented with the strong emphasis deriving from the different expectations and demands of the novel markets.

Central European Energy Corporation

The CEEC is a decision tree-based simulation developed by a faculty member at the Central European University. CEEC is based on one of the best performing energy corporation in Europe, a formerly state owned Hungarian company called MOL. MOL has been privatized and expanded during the past decades, becoming a leader in core markets of the Central and Eastern European region. This company operates 1,000 gas stations throughout Croatia, the Czech Republic, Hungary, Italy, Poland, Romania, Slovakia, Slovenia, and Ukraine individually and with several regional and nonregional partners. In addition, the MOL refineries produce 90,400 barrels of oil equivalent each day. Based on these basic characteristics and particularities, this company proved to provide an excellent blueprint to introduce cross-cultural elements and issues during the course of a simulation exercise.

Similarly to the Global Challenge simulation, students form groups and become the board of directors for the CEEC, having regular bi-weekly board meetings. For each of these meetings, a special set of agenda items are compiled and corresponding materials are provided to the students at least one week in advance, in order to ensure appropriate preparation time. There are approximately 6 board meetings, and each agenda has a minimum of 4 items. A sample for a set of agenda items can be found in Table 5.

As an example, the fourth point in Table 5 represents a merger/cooperation issue with INA (a non-Hungarian energy company). Students of the same nationality are selected and grouped together to play the role and act as members of the INA management. Active debates and negotiations begin among groups over this issue. Guidelines are discussed in advance to guide the process of negotiation (e.g., maintain the national identity of INA or accept full takeover by CEEC).

Another example concerns one of Europe's largest gas fields (accessible only by nonconventional methods) near the southern border of Hungary, right under the town called Mako (agenda item 2). This gas field extends over the border to surrounding countries. In addition, MOL would require the technical expertise of its American partner (ExxonMobil) in order to develop the field. Again, numerous issues are raised, ranging from simple problems like time difference between USA and Hungary, to various project management issues of increasing complexity. A further point of concern and topic of negotiation comes from the numerous com-

Table 5 Sample agenda for the boardroom executive exercise

	Agenda item	Outcome
1	Minutes from previous meeting	Approval
2	Future of CEEC's engagement in the exploration of the Makó gas field	Discussion, recommendation, or decision
3	Closing of the business year and dividend proposal	Discussion, approval
4	Discussion on INA-related issues	Recommendation
5	Corporate color/logo	Discussion, approval
6	Other business	Discussion, decision if required

plaints on behalf of local inhabitants in the area, actively voicing their discontent and concerns associated with the environmental hazards likely to be encountered during the exploration phase.

As shown in the outcome column in Table 5, each board was required to provide recommendations and/or final decisions related to each of the agenda items. Based on each of the board decisions, follow-up events and consequences are reviewed and discussed in their own subsequent meetings. Consequently, by their last meeting, the various boards created at the beginning of the simulation exercise tend to receive surprisingly different agenda items and topics of discussions, as these were contingent on their prior decisions.

Summary and Feedback on Our Integrative Approach

Based on our experience and student feedback, we found that exposing our students to cross-cultural issues using integrative approaches appears to be a particularly effective method. The inclusion of the 12-credit transnational leader element provided an excellent ground both for faculty and students to participate in discussions related to cross-cultural themes, equipping students with relevant skills and knowledge appropriate for the international awareness level. Through the simultaneous inclusion of the two simulations outlined above, we achieved further integration and enhancement. The BEE enabled students to gain experience in dealing with cross-national issues and to participate in serious management decisions. This element enhanced the international aspects of our curriculum further, as it provided students with skills and knowledge appropriate for the competence level.

Both the development of the TNL course and the simulation exercises required considerable efforts and careful cooperation and collaboration from the faculty. While some of the issues associated with course development and curriculum, revisions were likely to be one-time changes, constant content updates and supervision are required. In addition, the CEEC simulation is one of the most time consuming classes in our practice from the perspective of the instructor. Nevertheless, using these methods of the TNL theme and the business simulations, institutions may also be able to further ensure that those issues and concerns highlighted throughout the dissemination process of research studies into educational contexts will be reduced, via the inclusion of timely examples from various cultures, as well as through the careful and extensive examination of specific markets and geographic areas.

From an educational perspective, the feedback received from the first intake of students enrolled in the BEE was extremely positive, as apparent in the high student evaluations given for the course as a whole. In general, classes at the Central European University are evaluated by students on a 5-point Likert-type scale, including statements such as “course objectives were clearly defined” and “the course fulfilled its objectives.” Ratings range between 1 (strongly disagree) and 5 (strongly agree), and an average value is calculated incorporating all 10 statements for each

particular course. The boardroom executive exercise received a rating of 4.9, which is significantly higher than the overall university average.

Among the general feedback concerning various course elements, individual comments emphasized the value of the BEE in terms of "gaining insights into making decisions based on incomplete information and under time pressure" and "providing a unique experience and perspective concerning complex board level decisions." Students also provided constructive criticism, highlighting the need to "allocate sufficient credits to the BEE according to its workload," as well as to "add more situational role-play elements." Some students recommended incorporating the particularities of the current crises in the exercise.

Their interest and great extent of involvement resulted in further refinement of the BEE for subsequent cohorts, through the development of additional subthemes. As an example, members of one group organized a coup during their last board meeting and decided to unseat their chief executive officer (CEO) for making a number of arbitrary and inappropriate decisions. The potential of such a role-play element has now been incorporated into the decision tree. In terms of appropriateness of the workload, the total number of credits allocated for the BEE has also been doubled.

With respect to students' desire to gain insight into managing decisions during a period of crisis, a notable modification was added to the global challenge simulation (the specifics of which are described in the previous section). Namely, the CESIM Ltd. made it possible to adjust the original simulation by adding a unique scenario and modify key parameters. As a consequence, the current simulation exercise now incorporates various elements related to an economic crisis. As this was one of the most substantial recent modifications deriving from student feedback, we would like to provide some further information, as it may help others in their attempts to design a storyboard that reflects on the needs of their audience. Without going into technical details concerning the various parameter changes in the simulation itself, the following storyboard allowed the students to become immersed in an economically disadvantageous virtual environment.

> Unexpectedly, the collapse of a global housing bubble peaking in the U.S. caused the values of securities to plummet, damaging financial institutions globally and having widespread effects on economies. Leading specialists are calling the current event the worst financial crisis since the Great Depression of the 1930s. Economies worldwide are slowing down as credit is tightening and international trade is declining. The worst effects are expected in the United States, with over 10% decrease in demand. In Asia, weak consumer confidence and poor replacement sales coupled with price increases will probably result in a similar decrease. The picture is not much brighter in Europe either, where consumers locked into 18- and 24-month contracts are unable to upgrade and price sensitive buyers are shopping around for cheap solutions.
>
> The trade war between the United States and Asia intensifies: last week the United States matched the tariff for Asian goods imported to the US at $12 per handset in an effort to offset the building trade imbalance. William Cotledge at the Foundation for a Less Uncertain Tomorrow (FLUT), the Washington, D.C., headquartered think tank, commented on the current world order: "in our view, it is quite possible that the situation may escalate further in the next few years."
>
> Due to frozen credits, idle capacity is available: outsourcing capacity is up by nearly 50%. At the same time, production costs are up by 2%. The United States is introducing various tax cut options for a limited time to boost consumer and business confidence—as a result of

> these packages, the overall corporate tax rate is down to 30%. The European Union keeps the corporate tax rates at 33% throughout Europe, thus economists believe that Europe may enter into an even further depression due to its high tax level. Euro reverses its downturn against both the dollar and renmimbi. Finally, while central banks do keep interest rates low, times are difficult—interest rates for individual companies are now highly dependent on gearing ratios.

We are still in the process of evaluating the results of the simulation for the current academic year following the implementation of the above mentioned modifications. Nevertheless, students already complimented the extent to which the current simulation mirrored reality, as characterized by collapsing markets and financial challenges.

In comparison to the usual case study or similar experiential approaches, this simulation is not only unique because it has a complex storyboard and decision tree, but also because of its immersive, interactive, and multifaceted nature. With the rapid evolution of various simulation exercises (e.g., the collaboration of IBM and Second Life), we are planning to continuously analyze and compare our simulation with other available offerings, in order to benefit from future innovations. In line with our focus on cross-cultural management education, we particularly value simulations including cross-cultural elements, as well as a dynamic and complex storyline.

Conclusion

Graen and Hui (1999) argue that the perceptions of what it means to be a global leader are changing. The authors suggest that in order to acknowledge and internalize the changing management styles, "transcultural creative leaders" will be required. These are people who can "learn to (1) transcend their childhood acculturation and respect very different cultures; (2) build cross-cultural partnerships of mutual trust, respect, and obligation; (3) engage in cross-cultural creative problem solving to resolve conflicts; and (4) help construct third cultures in various operations" (Graen and Hui 1999, p. 25). Institutions, educators, and professionals can do a great deal to assist their students in achieving these crucial goals and advance their careers in such an international environment.

In the current state of the global economy, institutions need to take steps to internationalize their curricula, in order to meet the needs and demands of their students and their future employers. As we highlighted throughout the chapter, there are different levels of internationalization, and universities benefit from careful planning, implementation, and monitoring to accomplish successful results on each of the relevant stages. We reviewed some of the elements characterizing the journey between research studies and their dissemination into instructional materials within educational contexts, along with some of the issues associated with this process.

We referenced a useful and comprehensive model to assist institutions in terms of the operational side of curriculum internationalization, and expanded on it by offering various basic as well as complex instructional tools and techniques to be

used by educators in order to enhance their students' international awareness and competence. Despite the immense value of basic instructional materials, such as those of case studies and individual cross-cultural courses, we propose that integrative approaches may be more advantageous from the perspective of the students, as these have the ability to provide a wide variety of cross-cultural skills and first-hand experiences within a participatory, interactive, and interdisciplinary framework.

Some of the specific examples we offer, namely the transnational leader theme and the various business simulations, may work particularly well for our purposes due to the rather unique diversity of our student body. Nevertheless, through careful planning and implementation, most institutions—even those with a less diverse student composition—interested in experimenting with these and similar models should be able to benefit from the rewards derived from the appreciation of their participating students.

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Academic and Social Integration of International and Local Students at Five Business Schools, a Cross-Institutional Comparison

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Introduction

An increasing number of students choose to study at a university away from their home country (EUROSTAT n.d.). Next to the enriched, more international atmosphere at the host universities (Van der Wende 2003), there are some reservations among educators regarding the academic and social integration of international students. A common assumption in higher education is that *academic integration,* that is the extent to which students adapt to the academic way-of-life (Tinto 1975), of international students is not well aligned with the requirements of higher educational institutes (Asmar 2005; Barrie 2007; Morrison et al. 2005). Recent research has found a mixed picture on whether international students underperform in academic integration and academic performance. Therefore, Morrison et al. (2005) argue that research should extend its focus on comparisons in performance of international versus local students to the underlying reasons for these differences.

According to Tinto (1975, 1998), students not only need to persist at university in order to graduate but they also need to participate in the student culture, both within and outside the immediate context of the learning environment. Severiens and Wolff (2008) found that students who feel at home, who are well connected to fellow students and teachers and who take part in extra-curricular activities are more likely to graduate. In addition, Wilcox et al. (2005) found that social support by family and friends (i.e. social networks of students) has a positive influence on the study-success of first-year students. Having a sufficient number of friends, sharing accommodation with other students as well as contacts with the university staff can influence social integration. We define *social integration* as the extent to which students adapt to the social way-of-life at university. Recently, researchers are broadening the focus on academic integration and academic performance to the social integration of students (Severiens and Wolff 2008; Wilcox et al. 2005;

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Yazedjian and Toews 2006). The goal of this chapter is first to identify whether academic and social integration differs for local and international students. Second, we will identify the underlying reasons why academic and social integration between local and international students are different. Third, we will assess whether (potential) differences in academic and social integration between local and international students also have an impact on study-success. Finally, we will investigate whether institutional differences can explain why some business schools are more able to facilitate the adjustment processes of international students than others.

Academic Integration

Baker and Siryk (1999) have assessed that academic integration has a large influence on study performance. Baker and Siryk (1999) distinguish four concepts in academic integration, namely academic adjustment, social adjustment, personal and emotional adjustment and attachment. *Academic adjustment* refers to the degree of a student's success in coping with various educational demands such as motivation, application, performance and satisfaction with the academic environment. *Social adjustment* on the other hand describes how well students deal with the interpersonal-societal demands of a study, such as working in groups. The scale *personal and emotional adjustment* indicates the psychological and physical level of distress experienced while adapting to the academic way-of-life. Finally, *attachment* reflects the degree of commitment to the educational-institutional goals. In a large number of studies in U.S. colleges, the four concepts of academic adjustment are positively related with study progress and study performance (Baker and Siryk 1999).

In contrast to the United States, in Europe there is a distinction between universities of applied science (Uas) and universities (Uni). A main distinction between these two types of universities is the degree of *professional orientation,* that is degree of practical relevance of education to specific jobs such as accountants, marketers or sales managers. While universities are mainly research driven with a strong theoretical focus in education, universities of applied science offer education of professional and practical relevance. Research in the Netherlands indicates that ethnic minorities are more likely to register for Uas due to the practical applications (Severiens and Wolff 2008; Wolff 2008). Therefore, we have added professional orientation of students to academic integration.

Social Integration

Current research indicates that institutes and the social networks of students have a large influence on how first-year students adjust (Christie et al. 2004; Severiens and Wolff 2008; Tinto 1998; Wilcox et al. 2005). Therefore, in line with Severiens and Wolff (2008) we distinguish two elements in social integration among students,

namely the social integration facilitated by the institute (i.e. formal social integration) and the social integration facilitated by the social network of students (i.e. informal social integration).

Based upon an extensive literature review, we have identified two factors for formal social integration: the perception of the faculty and the educational system. The *perception of faculty,* that is the perceived esteem of the faculty by family, friends, the general public and future employers, influences the social integration of students (Gloria et al. 2005). Higher educational institutes are increasingly aware of impacts of ranking lists such as those published in the Financial Times on the choices that students make when selecting a new business programme. Therefore, business institutes spend considerable effort in providing non-academic facilities to students (e.g. campus, ICT-facilities, social life, cultural programmes) in order to differentiate them from other institutes (Bok 2003). A business institute with a well-perceived reputation by the social network of the students is expected to have a positive influence on the persistence of study. The *educational system* used at the institute has a strong influence on academic and social integration of students (Christie et al. 2004; Eringa and Huei-Ling 2009). For example, Christie et al. (2004) found that institutes with smaller classes and intensive mentoring are more successful in retaining students during the first year of studies than institutes with large classes. Research on constructivist learning methods like problem-based learning (PBL) has highlighted that students are more likely to develop social relationships with other students than when students are following education in large lecture halls (Hmelo-Silver 2004; Lindblom-Ylänne et al. 2003). In addition, a common educational method among universities of applied science is Competence-Based Education (CBE), whereby education is focussing on relevant professional competences and skills of students rather than theoretical and general knowledge (Baartman et al. 2007; Segers et al. 2003).

With respect to the informal social integration of students, we distinguish three factors, namely: social support by family and friends, social life and national/ethnic identity. Wilcox et al. (2005) found that *social support by family and friends* has a strong influence on study-success of first-year students. In general, the role of the family on the attitudes and motivation of students has been consistently found in educational psychology (Attewell et al. 2006; Cokley et al. 2001). The *social life* outside of the academic environment has a strong influence on academic integration. Having a sufficient number of friends, sharing accommodation with other students, being member of a study association, student fraternity or sports club can influence social integration (Bok 2003; Severiens and Wolff 2008). This allows students to become part of a social life that is closely attached to the university setting (Tinto 1998). Finally, research on cross-cultural differences has highlighted that both *national and ethnic identity* (Asmar 2005; Eringa and Huei-Ling 2009; Phinney 1990; Yazedjian and Toews 2006) influence how students learn in social networks. For example, Skyrme (2007) found that Chinese students who entered at a New Zeeland university had significant transitional problems. German students differed significantly with respect to learning styles and study performance to Dutch students at a Dutch business school (Tempelaar et al. 2007). In addition, recent research on

interaction patterns among international and local students indicates that local and international students live in separate social groups and therefore lead different social lives (Rienties et al. 2009). Last but not least, research on cultural differences has highlighted that an individual's self-concept is influenced by the sense of belonging to a particular ethnic group (Phinney 1990). For example, Yazedijan and Toews (2006) found that self-esteem, ethnic identity and acculturation among Hispanic students were more important than parental education and attachment to the institute. Gloria et al. (2005) found that perceived social support from friends, mentorship and perception of the university significantly influence whether Hispanic students successfully remain in college. Asmar (2005) found substantial differences integration between local Muslims from Australia and international Muslims who studied in Australia.

Research Questions

- To what extent do international students differ from local students with respect to academic and social integration?
- To what extent do non-Western students differ from Western students with respect to academic and social integration?
- To what extent do non-Westerns students differ from Western students with respect to study-success?
- To what extent do institutional settings influence the academic and social integration of international students?

Methods

Setting

In this research, academic and social integration will be compared among local and international students using a dataset that was composed from nine institutes of higher education in the Netherlands. In this study, we will focus on five business schools who offer business and economics programmes to first-year bachelor students. Four out of five institutes in our setting are universities of applied science (see Table 1). Three of these Uas offer International Business and Management (IMBS). The Haagse Hogeschool (HHS) and the Hogeschool van Amsterdam (HES) are located in The Hague and Amsterdam, while NHTV University of Applied Sciences, the Hogeschool Zuyd (HZ) and the University Maastricht (UM) are located in the smaller cities of Breda and Maastricht. The largest foreign group of students in four out of five institutes are German. Finally, four out of five institutes use CBE as a pedagogical approach, while NHTV also uses PBL. Finally, UM uses primarily PBL. Given that the five business schools use a variety of student sup-

Table 1 Respondents per institute and educational program

Institute	Educational programme	Uas/ Uni	Educational system	Largest foreign group	Total respon-dents	%
Hogeschool Zuyd (HZ)	International Business and Management Studies (IBMS), HEBO and hotelschool	Uas	CBE	German	65	17
NHTV Breda	International Media and Entertainment Management (IMEM), International Leisure Management (ILM)	Uas	PBL and CBE	German	159	53
Haagse Hogeschool (HHS)	International Communi-cation Management (ICM), International Business Management Studies (IBMS)	Uas	CBE	Chinese	172	57
Hogeschool van Amsterdam (HES)	International Business Management Studies (IBMS), International Financial Management (IFM)	Uas	CBE	German	40	51
Maastricht University (UM)	International Business (IB), International Business Economics (IBE)	Uni	PBL	German	435	52
Total					*871*	*46.2*

port systems and pedagogical approaches, we expected that some business schools will be more able to support their international students in adjusting to the institute than others. In particular, business schools with small-scale education and a profes-sional orientation were expected to better facilitate academic and social integration of international students. Next to the Student Adaptation to College Questionnaire (SACQ) and professional orientation, five variables were hypothesized to mediate a student's social integration: perception of the faculty, educational system, support by friends and family, the social life and nationality/ethnic identity.

Participants

The integrated questionnaire was distributed to 2,647 students in February–April 2009 among nine Dutch higher educational institutes (see Table 1). The students had been at their institute for six to seven months. Particular care was taken to target programs that had a significant portion of international and local students in order to be able to make direct comparisons on both the institute and the aggregate level. In total, 1,340 (50.6%) questionnaires were returned, with the subset of five institutes

consisting of 959 (50.8%) respondents. The questionnaire was fully completed by 871 respondents. In return for their effort, students were offered a feedback on their scores relative to other students from their institute. In addition, students could win an iPod Nano or one of five vouchers of 25 €.

Measurements

Academic Integration

Student Adaptation to College Questionnaire and Professional Orientation

Academic integration was measured by the student adaptation to college questionnaire (Baker and Siryk 1999), which consists of four scales and a total score. Firstly, academic adjustment was measured by 24 items such as "I know why I am at this institute and what I want out of it" and yielded a Cronbach alpha (α) of 0.824. Secondly, social adjustment was composed of 20 items like "I am meeting as many people and making as many friends as I would like at the institute" with $\alpha = 0.838$. Thirdly, personal and emotional adjustment consisted of 15 items such as "I have been feeling tense and nervous lately" with $\alpha = 0.838$. Lastly, attachment to institute was measured by 15 items like "I expect to stay at this university for my master degree" with $\alpha = 0.847$. Applications of SACQ in Belgium and the Netherlands have confirmed that SACQ is also useful in a European context (Beyers and Goossens 2002; Niculescu et al. 2010). In addition, professional orientation was included in academic integration, which consisted of four items like "My study is oriented to the actual developments of future professional activities" with $\alpha = 0.731$.

Social Integration

Social Integration Questionnaire

Social integration was measured by the Social Integration (SI) instrument developed at Maastricht University (Rienties et al. 2009), which consists of 37 questions in six subscales. Firstly, perceptions of the institute by others was measured by three items like "I think that employers have a good perception/image of my study", yielding $\alpha = 0.747$. Secondly, the appropriateness of the educational system used by the institute was measured by two items like "The reason to go to the Maastricht University was mainly problem-based learning" with $\alpha = 0.627$. Thirdly, the support of the social network of the students by family and friends was measured by three items like "My family encourages me to stay in the faculty" with $\alpha = 0.796$. Fourthly, the satisfaction of social life was assessed by six items like "I am satisfied with my social life outside of class" with $\alpha = 0.778$. Fifthly, the national/ethnic identity was measured by four open questions, namely mother's mother tongue, father's mother tongue, own mother tongue and official citizenship(s). In total 79 nationalities and 129 ethnic

identities were present in the database. Therefore, in order to prevent a fragmented approach of comparing a limited amount of students within each ethnic category, students were categorized according to the "degree of Westernness". We assumed that the more Western influences a student had, the easier it would be for the student to adjust to the Dutch culture. Thus, in each of the four categories a distinction was made between Western cultures (European Union, USA, Canada, Australia, New Zealand) and non-Western cultures. Consequently, four groups (Dutch, Western, mixed-Western, non-Western) were distinguished. Dutch students can thus be compared to students that had a completely Western background (e.g. German student with German parents), a mixed-Western background (e.g. a German student with Turkish parents who was born and raised in Germany) or a purely non-Western background (e.g. Chinese students with Chinese parents). Finally, students were asked whether they were members of fraternities or study associations, had a part-time job and what their degree of contact was with local students—with students of the largest foreign groups (German or Chinese students) and with other international students.

Study-Success

The study-success of participants was assessed by comparing the number of European credit transfer system (ECTS) credits obtained after one year of study as well as the grade point average (GPA). In total 68% of the ID-numbers could be linked with the study-success data of the five business schools. Data from HHS and HvA were missing due to the policies of privacy at the respective institutes.

Analysis

The interrelationships between all measures were assessed using ANOVAs, Chi-Squares tests and effect sizes (Cohen's *d*). Cohen' *d* expresses the distance between two group means in terms of their pooled standard deviation (Cohen 1998). Cohen (1998) recommend that $d=0.20$ (small effect), $d=0.50$ (moderate effect) and $d=0.80$ (large effect) serve as general guidelines across disciplines. Finally, a k-means cluster analysis was conducted in order to compare clusters over all academic and social integration variables. Here, four clusters provided the most appropriate model fit and allowed further identification of causes of variances and group differences.

Results

In Table 2, the mean and standard deviations of the ten academic and social integration variables are illustrated. As was found previously (Baker and Siryk 1999; Beyers and Goossens 2002), the four subscales and total scores of SACQ are highly intercorrelated. In addition, there is a positive correlation between the SACQ scales

Table 2 Correlations among academic and social integration variables

	M	SD	Tot	AA	SA	PEA	A	PO	PF	ES	SFF
SACQ total (Tot)	414.42	51.48	1								
Academic adjustment (AA)	146.43	22.22	0.82**	1							
Social adjustment (SA)	124.08	20.12	0.74**	0.50**	1						
Personal/emotional adjustment (PEA)	91.82	18.36	0.73**	0.51**	0.41**	1					
Attachment (A)	102.41	16.40	0.71**	0.56**	0.78**	0.45**	1				
Professional orientation (PO)	I8.48	3.20	0.37**	0.44**	0.35**	0.16**	0.45**	1			
Perception of faculty (PF)	11.21	2.18	0.22**	0.21**	0.26**	0.14**	0.38**	0.42**	1		
Educational system (ES)	6.11	l.88	0.18**	0.26**	0.11**	0.03	0.15**	0.32**	0.11**	1	
Social support by family and friends (SFF)	13.35	2.78	0.18**	0.17**	0.19**	0.07*	0.25**	0.26**	0.28**	0.08**	1
Social life (SL)	33.59	7.21	0.66**	0.39**	0.87**	0.32**	0.66**	0.31**	0.23**	0.10**	0.19**

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

and professional orientation. The two formal social integration variables (perception of the faculty, educational system) are positively correlated with the academic integration variables. The perception of the faculty is particularly correlated with the attachment and professional orientation of the institute. The choice for a particular educational system is positively correlated with academic adjustment and professional orientation. For the two informal social integration variables, support of family and friends is mainly correlated with perception of the faculty and professional orientation, while social life is mainly correlated with social adjustment and attachment to the institute.

Table 3 shows the aggregated results for the academic integration of local (Dutch) and international students. International students score significantly higher on professional orientation ($d=-0.28$), while Dutch students score higher on personal and emotional adjustment ($d=0.30$), but all effect sizes are small. Table 4

Table 3 Academic integration of Dutch versus international students

	Dutch		International		*t*-test	*d*-value
	M	SD	M	SD		
SACQ total	415.86	49.15	409.75	50.59	1.69†	0.12
Academic adjustment	142.36	20.54	144.78	20.82	−1.62	
Social adjustment	123.22	17.87	124.03	20.60	−0.57	
Personal/emotional adjustment	94.71	17.78	89.43	18.47	4.02*	0.30
Attachment	103.87	15.05	104.31	16.28	−0.36	
Professional orientation	18.31	2.76	19.14	2.93	−2.88*	−0.28

Independent sample *t*-test (2-sided) and Cohen *d*-value of Dutch students ($n=289$) vs. foreign students ($n=582$)
*Coefficient is significant at the 0.01 level (2-tailed)
† Coefficient is significant at the 0.10 level (2-tailed)

Table 4 Comparison of Dutch and international students in social integration

	Dutch		International		*t*-test	*d*-value
	M	SD	M	SD		
Perception of institute	10.87	1.95	11.58	2.13	−4.73*	−0.34
Educational system	5.96	1.75	6.08	1.88	−0.93	
Support family and friends	12.25	2.21	12.00	2.45	1.49	
Social life	34.17	6.36	33.66	7.04	0.94	
Contact with Dutch	4.01	1.02	2.95	1.23	12.63*	0.91
Contact with largest foreign group	2.62	1.40	3.77	1.41	−11.29*	−0.81
Contact with other nationalities	2.55	1.31	3.03	1.27	−5.17*	−0.37
Member student fraternity (%)	26		12		51.12*	
Member study association (%)	7		15		13.76*	
Part-time job (%)	60		39		33.69*	

Independent sample *t*-test (2-sided) and Cohen *d*-value of Dutch students ($n=289$) vs. foreign students ($n=582$) and Chi-Square analysis for last three variables
*Coefficient is significant at the 0.01 level (2-tailed)

illustrates the social integration of local and international students. Dutch students have significantly more contact with fellow Dutch students ($d=0.91$). The effect size is the largest for this variable, implying that substantial differences in social contacts occur between Dutch and international students. In addition, Dutch students are more likely to be a member of a student fraternity (26% compared to 12%) and to have a part-time job (60% compared to 39%). International students indicate that their social networks have a higher perception of their institute ($d=-0.34$) and international students are in more contact with the largest foreign group ($d=-0.81$) and other international students ($d=-0.37$). Lastly, they are more likely to be the member of a study association (15% compared to 7%). In other words, by looking at the overall scores of academic and social integration of international students in comparison to Dutch students, one could conclude that there are no substantial differences on academic integration with the exception of personal and emotional adjustment. In contrast, the social life of international students is substantially different from Dutch students. A potential caveat of these findings is that aggregating all international students together in one category undermines the (expected) substantial differences in academic and social integration between Western and non-Western students.

In order to gain a more detailed perspective of the different (sub)groups of international students, Tables 5 and 6 illustrate the academic and social integration of Dutch, Western, mixed Western and non-Western students. In comparison to Dutch students, Western students score higher on all scales of academic integration with the exception of personal/emotional adjustment. In addition, mixed-Western students score significantly higher on all dimensions of academic integration in comparison to both Dutch and Western students. However, non-Western students score significantly lower on all elements of academic integration with the exception of academic adjustment. The lower academic integration scores for non-Western

Table 5 Academic integration of Dutch students versus international student groups

	Dutch		Western		Mixed Western		Non-Western		*F*-test
	M	SD	M	SD	M	SD	M	SD	
SACQ total	404.54	43.64	408.31	47.98	417.65	46.20	388.58	55.10	5.84*
Academic adjustment	141.57	20.01	144.17	20.13	151.17	21.66	145.23	23.72	3.38*
Social adjustment	123.65	17.21	126.03	20.04	128.51	16.00	116.13	22.45	13.47*
Personal/ emotional adjustment	94.93	17.75	89.84	18.46	92.03	18.32	86.40	16.36	8.31*
Attachment	103.91	14.51	106.35	15.40	105.21	15.93	95.40	17.57	14.82*
Professional orientation	18.18	2.60	19.17	2.56	19.96	3.13	18.63	2.89	4.17*

ANOVA *F*-test for Dutch students ($n=260$), Western students ($n=428$), mixed-Western students ($n=79$) and non-Western students ($n=86$)

*Coefficient is significant at the 0.01 level (2-tailed)

Table 6 Comparison of Dutch students and international student groups in social integration

	Dutch		Western		Mixed Western		Non-Western		*F*-test
	M	SD	M	SD	M	SD	M	SD	
Perception of institute	10.89	1.97	11.80	2.09	10.92	2.10	10.83	1.96	15.18*
Educational system	5.98	1.75	5.93	1.90	5.94	1.82	6.83	1.67	6.08*
Support family and friends	12.23	2.20	12.09	2.38	12.29	2.72	11.46	2.45	2.5†
Social life	33.53	6.26	33.98	6.90	36.67	5.77	30.82	7.72	9.54*
Contact with Dutch	4.01	1.01	2.91	1.24	3.44	1.23	2.90	1.20	51.22*
Contact with largest foreign group	2.61	1.39	3.92	1.38	3.17	1.47	3.42	1.39	49.23*
Contact with other nationalities	2.46	1.29	2.88	1.29	3.41	1.17	3.48	1.06	20.64*
Member student fraternity (%)	27		9		17		24		167.00*
Member study association (%)	7		14		13		19		107.88*
Part-time job (%)	61		39		44		44		36.74*
GPA	6.64	0.99	7.02	0.93	6.84	0.75	6.55	0.96	7.74*
ECTS	54.16	9.15	56.31	6.99	53.33	5.33	54.04	9.11	4.13*

ANOVA *F*-test for Dutch students ($n=260$), Western students ($n=428$), mixed-Western students ($n=79$) and non-Western students ($n=86$)

*Coefficient is significant at the 0.01 level (2-tailed)

† Coefficient is significant at the 0.10 level (2-tailed)

students are replicated for social integration with the exception of the educational system. Non-Western students are less satisfied with their social life and have less contact to Dutch and other Western students. Mixed-Western students score highest on support by family and friends and social life. Western students have the highest perception of their institute and are mostly in contact with the largest foreign group of students.

Overall, we can conclude that the social worlds of Dutch and international students (in general) are highly segregated. That is, Dutch students are more likely to have contact to only Dutch students, who mostly have a part-time job and who are more likely to be a member of a student fraternity. Mixed-Western and non-Western students have mostly contacts among other mixed/non-Western students. Western students mainly have contacts to the largest foreign group, mainly Germans. In other words, the social segregation of social networks in Table 4 is replicated when we distinguish various subgroups of international students in Table 6. Finally, if we look at study-success, Western students attain higher GPA and numbers of ECTS than Mixed-Western, Dutch and non-Western students. As was expected non-Western students score significantly lower on both GPA and ECTS than Western students, while this difference disappears when we compare non-Western with Dutch or mixed-Western students.

From Tables 2, 3, 4, 5 and 6, one can conclude that the standard deviation of several academic and social integration variables is substantial, indicating that some (groups of) students do better or worse than the average student. In order to further differentiate which participants are clustered according to their scores on academic and social integration, a k-means cluster analysis was performed. Due to the fourfold division of the nationality score, four cluster centres provided the best fit. As can be seen from Table 7, cluster 1 and cluster 2 contain the highest-scoring students of the sample across academic and social integration, up to the variable social life. Cluster 3 and cluster 4 contain the lowest and lower scoring students on academic and social integration. In Table 8, 69% of Dutch and Western students are present in the clusters 2 and 4 regarding academic and social integration. Mixed-Western students can also mainly be found in the clusters 2 and 4, while 59% of all non-Western students are represented among the low-adjusted students of the clusters 3 and 4. In other words, by using a cluster analysis, the academic and social integration and study-success indicators among local and foreign students show an appealing picture for both proponents and opponents of further internationalisation of higher education. That is, from a proponent's point of view, we find that Western and mixed Western students do at least as well as local students, while 31% of the non-Western students also do well on academic and social integration. From an opponent's point of view, the relatively large subgroup of

Table 7 Cluster centres for academic and social integration

	Cluster centres				
	Highest $n=152$	2nd highest $n=308$	3rd highest $n=258$	4th highest $n=139$	*F*-test
SACQ total	475.38	426.09	382.34	332.93	1606.95*
Academic adjustment	171.73	150.14	134.41	118.74	448.86*
Social adjustment	145.46	132.3	116.74	99.3	355.47*
Personal/emotional adjustment	112.16	96.4	83.91	70.78	252.91*
Attachment	120.76	111.43	99.57	81.23	435.23*
Perception of the faculty	11.93	11.65	11.12	10.57	8.91*
Educational system	6.5	6.13	6.02	5.33	9.72*
Social support by family and friends	12.57	12.33	11.84	11.53	5.93*
Social life	14.63	14.08	13.07	12.59	171.57*
Contact with Dutch	3.53	3.45	3.1	3.02	7.97*
Contact with largest foreign group	3.56	3.47	3.3	3.27	0.6
Contact with other nationalities	3.12	2.89	2.76	2.81	2.06
Member of student fraternity (%)	49	44	47	45	0.78
Member of study association (%)	15	18	14	17	0.7
Part-time job (%)	1	13	11	13	0.72
GPA	7.01	7.02	6.69	6.70	5.46*
ECTS	56.19	56.47	51.36	55.45	9.88*

K-means cluster analysis with four cluster centres ($n=828$)
*Coefficient is significant at the 0.01 level (2-tailed)

Table 8 Cluster centres by nationality groups (in %)

	Cluster centres				
	Highest	2nd highest	3rd highest	4th highest	*F*-test
Dutch students	16	38	32	14	0.82
Western students	17	38	29	16	0.78
Mixed Western students	25	33	22	9	2.87*
Non-Western students	16	20	31	33	5.61**

K-means cluster analysis with four cluster centres ($n = 663$)
*Coefficient is significant at the 0.05 level (2-tailed)
**Coefficient is significant at the 0.01 level (2-tailed)

59% of non-Western students who belong to the underperforming clusters 3 and 4 students indicates that the majority of non-Western students is not well equipped to start at a business school.

Comparison Among Five Business Schools

In general, the students at NHTV score higher on academic and social integration than the other four institutes (not illustrated). Western students at NHTV score higher on academic integration than the other four institutes. With respect to social integration, Western students are more likely to have social contacts with Dutch students at HZ, NHTV and followed by HES, HHS and finally UM. Non-Western students do particularly well at NHTV on academic and social integration, while non-Western students at HES and HHS underperform relative to their Dutch and other non-Western peers.

Discussion

In this chapter, we tried to determine whether academic and social integration of international students differed from local (Dutch) students at five business schools in the Netherlands. A common assumption among educators is that academic and social integration of international students, that is the extent to which students adapt to the academic and social way of life, is not well taken into consideration by institutes of higher education. In order to gain a perspective on this lack of adjustment, this study tried to identify the underlying reasons for students' successful or unsuccessful integration, as suggested by Christie et al. (2004). As a new feature of this study, student retention was explained by both academic integration (Baker and Siryk 1999; Beyers and Goossens 2002) and social integration (Severiens and Wolff 2008; Tinto 1998; Wilcox et al. 2005). Finally, by extending the focus to five business schools across the Netherlands, different teaching methods could be compared with regard to their effects on student integration.

Our first main finding is that contrary to popular beliefs the academic integration of international students was not worse than local students. International students did score lower on personal and emotional adjustment than Dutch students, but this can be explained by the fact that adapting to a new culture takes time and might cause stress (Asmar 2005; Skyrme 2007). Given that the questionnaire was distributed after six to seven months after the start of the students' academic study, one might expect that international students were not yet fully emotionally adjusted. With time, one might expect that the emotional and personal adjustment problems of international students will disappear. This could be investigated in further research using longitudinal data on this dataset.

A second major finding is that the social worlds of international students differed significantly from local students. That is, international students were less likely to have contact to Dutch students. Furthermore, international students were less likely to have a part-time job or be member of a student fraternity. An obvious reason for this segregation of social worlds is that international students mostly need to be able to speak Dutch when becoming member of a student fraternity or working besides one's study. This might be a substantial barrier for some international students. At the same time, the limited social contacts of Dutch students to international students indicate that Dutch students, who mainly study at an international business programme and do not have difficulties to speak English, perceive substantial barriers to make contact to international students in their social life. Whether this is due to the lack of effort of Dutch or international students to make social contacts needs to be investigate in future research.

A third major finding is that the successfulness of academic integration is partly related to the degree of Westernness of international students. In general, (mixed) Western students performed equal or even better than Dutch students on academic integration. This is a positive and optimistic finding for all educators who are concerned with the impact of increased internationalisation (Van der Wende 2003). Furthermore, (mixed) Western students had a higher perception of the reputation and the educational system at the institute. In contrast, 59% of non-Western students performed significantly lower on all scales of academic integration with the exception of academic adjustment. Furthermore, most non-Western students were less satisfied with their social life and received the lowest amount of social support from family and friends. Non-Western students were well represented among student fraternities and study associations. However, given that most non-Western students studied at HES and HHS who have specific student fraternities and associations for international students, it is quite likely that the actual contacts with Dutch students are limited. This was reflected by the fact that non-Western students had the lowest contacts of all three Western groups with Dutch students. Overall, there are substantial acculturation problems for 59% of non-Western students in our sample. This requires a pro-active institutional approach (e.g. study coaching, mentoring, small classes) to facilitate non-Western students with their adjustment process when studying at a business school.

A fourth major finding is that students from local (Dutch) and non-Western backgrounds seem to score lower GPA and ECTS in comparison to Western students.

The fact that Dutch students underperform relative to Western students has been found before (Tempelaar 2006; Tempelaar et al. 2007). The lower study success of non-Western students has also been found before (Morrison et al. 2005). Although we found that non-Western students obtained lower GPA, their ECTS credits were not lower than local and mixed-Western students.

Finally, in particular the NHTV and HZ were effective in facilitating the academic and social adjustment processes of international students, while in particular non-Western students at HHS and HES seemed to have more academic and social integration issues. It seems that if large groups of a certain category of international students are present at the institute, it becomes easier for international students to form separate social networks. This might explain why Western students at UM (who form 70% of the response group) have limited contacts to Dutch students. At the same time, the relatively large group of non-Western students at HHS might have sufficient size not to integrate with Dutch students, while the 4 or 5 non-Western students who study at HZ or NHTV were "automatically" stimulated to join social activities of the large Dutch community. However, given the different student populations and unequal response rates among the five business schools, one should be cautious in making inferences about the (lack of) successfulness of certain business schools to facilitate international students in their study.

Limitations and Future Research

A first limitation of this research is that we used self-reported scores of students on academic and social integration. In addition to the known issues of self-reported scores, groups or persons who are "at risk" might not have returned the questionnaire or would not have filled in the questionnaire in a socially desirable manner. By distributing the internationally validated questionnaires in class on paper, we tried to limit this selection bias. In addition, we indicated that each student would be given feedback on their academic and social integration scores, hoping to encourage students to report true scores. A second limitation of this research is that the questionnaire was distributed after six to seven months, which might (possibly) prevent us to incorporate (international) students who had already dropped out. Last but not least, the actual academic study success of HHS and HVA was not taken into account in this study. Nonetheless, previous research (Baker and Siryk 1999; Beyers and Goossens 2002; Gloria et al. 2005; Niculescu et al. 2010; Severiens and Wolff 2008) has consistently found that low scores on academic and/or social integration leads to poor academic performance of students. In addition, the primary focus in this chapter was to assess how international students perceive the academic and social worlds in which they study, in line with recommendations of Christie et al. (2004).

Given the above limitations, we aim to do a second measurement of the questionnaire among new first-year students in December 2009. In addition, we will gather longitudinal study performance data of these respondents in order to assess what the impact of academic and social integration is on their learning outcomes and

validate our findings. Finally, in the NAP acculturation project nine online acculturation courses among nine higher educational institutes in the Netherlands were implemented in spring–autumn 2009 to a large number of international students in a range of disciplines. By offering these courses, we focussed on getting international students acquainted with the Netherlands and the specific issues at the institute. In this way, we hope to facilitate in particular non-Western students who have according to our findings the largest adjustment problems in our business schools.

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Exploring Student Attrition in Problem-Based Learning: Tutor and Student Perceptions on Student Progress

Jan Nijhuis and Rinske Franssen

Introduction

Attrition is common in Western universities, a trend which seems especially true for undergraduate schools in business. Typical attrition rates are between 30 and 40% after the first bachelor year. While institutional researchers have developed monitoring systems to track students' progress, a number of researchers have suggested that educational research needs to probe deeper into the explanatory mechanisms of attrition (e.g. Nerad 1996). According to Allen (1999) the key to understanding attrition lies in understanding how students adapt to their new academic environment. The transition from high school to university is not always easy for the new students. They encounter stressors that include moving away from their parents' home, dealing with money and time on their own and making new friendships. These problems may lead to a diminished adaptation to their new situation and may cause the students to drop out in the first year.

The majority of research in attrition has been conducted in traditional, lecture-based higher education settings. However, other educational settings might yield lower attrition. A case in point is problem-based learning (PBL) programs (Albanese and Mitchell 1993). But in this situation the question remains how students might adjust their learning and social behavior in problem-based undergraduate education. We know that PBL has been shown to have a robust positive effect on the learning skills of the students and that students are better in applying their knowledge compared to students participating in more conventional education programs (Dochy 2003). Additionally, students participating in PBL need to develop a variety of important social skills in order to exchange ideas, construct meanings and communicate effectively with the different personalities in the group (Wilkerson 1996). Finally, it is expected that students in PBL are stimulated and motivated by this

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method to become skilled, self-directed learners who have a lower chance of dropping out (Barrows 1996).

PBL is an educational setting where the students meet twice a week in small (12–14 students) groups where the tutor, usually a member of the faculty, functions as a process leader during the tutorials (Schmidt 1983). Due to this approach, tutors observe students' learning behaviours on multiple occasions. They see how students interact with other students, work on problem situations and process academic literature. These encounters may help them to build more or less valid expectations about students' adaptive behaviour to academic and professional requirements. Research on tutor observations and expectations has indeed demonstrated moderate to strong correspondence between tutor judgments and student achievement (Alvidrez 1999; Hoge 1989). In PBL programs tutors can observe students in classroom interactions, ask questions about their study progress and assess their cognitive ability. PBL research also suggests that tutors' perception of student performance corresponds strongly with actual student performance measured on end-of-course examinations (van de Watering 2006).

Research by Allen (1999) has demonstrated that the key to understanding attrition lies in how students adapt to their new academic environment. Tinto's studies (1987) on attrition provide a case in point. He found that students' background characteristics interact with social and academic integration and students' commitment to meet educational goals of the institution. Social integration in this definition is the capability of the student to interact with fellow students, tutors and new friends. Academic integration considers the capability of the student to adapt to the demands of the university, such as dealing with the literature, writing reports and other academic competencies. Furthermore, whether students feel at home at the university and feel a sense of belonging plays an important role in determining students' commitment to their university. Tinto (1987) showed that increased academic integration leads to better student commitment to the goal of the education, which diminishes attrition. Moreover, higher social adaption resulted in higher institutional commitment, thereby causing lower attrition. Baker and Siryk (1989) built further on Tinto's work, and refined his model by identifying four kinds of adjustment factors: academic, social and emotional adjustment and attachment to university. They found that the better a student is adjusted on these factors the less chance he/she has of dropping out.

Because attrition rates affect both the student and the university, both will benefit from research giving more insight into the factors causing this problem. There is a range of research on predicting attrition of students which are based primarily on self-reports by the students (e.g. Beyers 2002; Boyle 2003). Reports by staff members on students are a source not often used in research with respect to attrition rates. Our research aims to provide enhanced understanding of the mechanisms underlying attrition, and whether tutors can be a valuable information source. In the present research predictions based not only on students' but also on staffs' perceptions are taken into account in order to predict actual student progress. We analyse how tutor perception at the end of the first and second courses, and students' self-perceptions predicted actual attrition after studying one year in a PBL program.

Methods

Sample

We approached 858 freshmen. After one year 100 (11.7%) students abandoned their studies (dropouts) voluntarily, 189 (22.0%) failed the first year, 185 (21.6%) could conditionally proceed to the second year and 385 (44.9%) passed the first year unconditionally. In total 610 students (response rate: 71%, 61% male, 39% female) completed the Student Adaptation to College Questionnaire (SACQ) on paper at the end of their first course and were also assessed by the tutors. Of the 50 tutors approached in this research, 44 tutors (response rate: 88%) provided us with data on their students at the end of their courses.

Setting

The present study was conducted at a large PBL-based European business school. The data were collected in two periods of seven weeks, each in the first academic year. In the first period, the course Management of Organizations and Marketing (OM), where 791 students and 16 tutors participated was taught parallel with Quantitative Methods (QM) where 480 students and 11 tutors participated. In the second period, the course Accounting and Finance (AF) was taught with 786 participating students and 17 tutors. The students were randomly assigned to their tutorial groups. The tutorial groups consisted of 12–14 students, guided by one tutor. Although PBL is the main educational format in all courses, the courses differed somewhat in the application of PBL. The pure PBL design, with the 7-jump procedure, is used in the courses OM and AF. For QM a more structured version of PBL is used, where the tutor is more guiding because there is no preparatory discussion and brainstorm.

Measures

We used the SACQ by Baker and Siryk (1989) to assess four kinds of adjustment to university:

- Academic adjustment
- Social adjustment
- Emotional adjustment
- Attachment

The academic adjustment scale refers to how well the student manages the educational demands of the university experience. The social adjustment scale refers to how well the student deals with interpersonal experiences at the university (e.g. making friends, joining groups). The personal-emotional adjustment scale

Table 1 Statistics of the SACQ filled in by the students (scale 1–9)

Scale	Items	Scale mean (sd)	Cronbach's alpha
Academic adjustment	24	5.9 (0.9)	0.86
Social adjustment	18	6.1 (1.0)	0.85
Personal-emotional adjustment	15	6.0 (1.3)	0.86
Attachment	14	7.0 (1.1)	0.86

refers to whether the student experiences general psychological distress or shows somatic symptoms of distress. Finally, the attachment scale refers to the degree of commitment the adolescent feels towards the university as an institution.

The SACQ consists of 67 items, answered on a Likert-type scale from 1 (disagree) to 9 (agree). This questionnaire was used because of the proven reliability and validity (Baker and Siryk 1999; Beyers 2002). The students completed the questionnaire at the end of the first course. For each student, tutors were asked to fill in an adapted form of the questionnaire on paper at the end of their courses, with one question per scale to be answered on a scale from 1 (disagree) to 5 (agree). Besides these questions, the tutor was asked to give an estimation of how likely the student was to successfully complete the first year, for each student in percentages.

Cronbach's alphas to assess the reliability of the SACQ filled out by the students were found to be acceptable. The scales academic adjustment, personal-emotional adjustment and attachment have an alpha of 0.86 and social adjustment has an alpha of 0.85 (see Table 1). Furthermore, Table 1 shows the means on scale level ranging from 1 (disagree) to 9 (agree). With the exception of the attachment scale (7.0), the means clustered around 6 (5.9–6.1). These means are all above the mean of 5, suggesting that the students are more adjusted than average. As the tutors only filled in one question per scale, Cronbach's alpha could not be calculated.

At the end of the academic year, data on the progress of each student from the university registration system were collected, and coded their progress status as follows: (1) voluntary dropout, (2) denied access to second year because of poor exam results, (3) conditionally pass, because of meeting a minimum level of passed courses and (4) unconditional pass.

Analyses

Pearson correlations were conducted to see if there was an agreement between the tutors of different courses in their predictions and to assess the relation between student adaptation and actual student progress. To investigate what predicts actual student progress best, separate backward hierarchical regressions for the prediction of the students and for the predictions of the tutors for each course were performed. Using the following probabilities of F: entry <= 0.01, and removal >= 0.05. The backward method was chosen, because it is less likely to exclude predictors involved in suppressor effects, and thus the risk of making a type-II error is smaller as compared to the forward method (Field 2005).

Results

To assess whether the tutors from the different courses shared agreement on their predictions of the students' success, Pearson correlations were conducted (Table 2). All predictions of the tutors correlate significantly with each other, with $p < 0.01$. Especially the tutors from OM and QM show agreement in their predictions. The correlations between the tutors from OM and QM and AF show weaker links.

In Table 3, the correlations between the students' perception of their adaptation and their actual progress are stated. Academic adjustment as well as attachment showed a significant positive correlation (however weak) with the actual student progress, with correlations of 0.27 and 0.12 respectively.

Table 4 shows the correlations of tutors' perception of students' adaptation, expected passing rate and the actual student progress. For the courses OM and AF, all the factors gave significant positive results. The greatest correlations in the course OM were for the scale academic adjustment (0.40) and "expected passing rate" (0.39). For the course AF the greatest correlations were also for these two factors

Table 2 Pearson correlation between the tutors' perception of the students' adjustment between the different courses

	OM/QM	OM/AF	QM/AF
Academic adjustment	0.36**	0.29**	0.25**
Social adjustment	0.43**	0.25**	0.28**
Personal-emotional adjustment	0.24**	0.22**	0.18**
Attachment	0.32**	0.10**	0.25**
Passing rate	0.40**	0.28**	0.31**

**$p < 0.01$

Table 3 Pearson correlations between students' perception of student adaptation and actual student progress ($n = 610$)

	Actual student progress
Academic adjustment	0.27**
Social adjustment	0.09*
Personal-emotional adjustment	0.07
Attachment	0.12**

*$p < 0.05$; **$p < 0.01$

Table 4 Pearson correlations between tutors' perception of student adaptation, expected passing rate and actual student progress in the different courses

Course	Actual student progress		
	OM ($n = 791$)	QM ($n = 480$)	AF ($n = 786$)
Academic adjustment	0.40**	0.04	0.33**
Social adjustment	0.31**	0.10*	0.25**
Personal-emotional adjustment	0.30**	0.07	0.24**
Attachment	0.31**	0.03	0.28**
Expected passing rate	0.39**	0.04	0.35**

*$p < 0.05$; **$p < 0.01$

Table 5 Prediction of actual student progress by students and tutors (OM, QM and AF) (backward hierarchical regression)

	Block 1						Block 2	
	Student (n=639)		OM (n=791)		QM (n=480)		AF (n=786)	
	Beta	t	Beta	t	Beta	t	Beta	t
Academic adjustment	0.27	7.00	0.07	2.34	n.s.		n.s.	
Expected passing rate	n.a.		0.43	13.67	n.s.		0.48	15.29
R^2_{adj}	0.07		0.20		0.00		0.23	

0.33 and 0.35, respectively. For the course QM there was only one significant correlation with the actual student progress for the scale social adjustment (0.10), however this correlation was very weak.

To investigate whether the actual student progress is best predicted by tutors or students, separate backward hierarchical regressions were performed, separated for the students and each course. The results of these regressions can be found in Table 5, where only significant findings are listed. The academic adjustment scale is most significant for the students and the tutors of block OM with regard to the students' actual progress. The expected passing rate predicted by the tutors of OM and AF also shows a significant relationship with actual student progress. Furthermore, it can be seen by the figures of R^2_{adj} that the highest predictors of actual student progress are for OM academic adjustment and expected passing rate, as well as for AF expected passing rate with $R^2_{adj}=0.20$ and 0.23, respectively. While the students' academic adjustment only shows an R^2_{adj} of 0.07.

Discussion

The purpose of the present study is to examine whether tutors in a PBL setting can be a valuable resource in assessing students' adaptation to the university and, when combined with student self-report, help predict student status at the end of the first academic year. This premise has not been tested previously.

From the results it appears that there is a consensus between the tutors concerning the adaptation and passing rate of the students. Especially the tutors from OM and QM show average correlations. These tutors compared to the tutors from AF show also correlations with each other, however, weaker links are found here. This suggests that the tutors from the different blocks perceive students' adaptation similarly.

The present study confirms previous research (e.g. Allen 1999; Baker et al. 1985; Tinto 1987) suggesting that poor adaptation to university life may cause students to drop out. Hence, students with lower adaptation are more prone to drop out of university, compared with students who are better adapted to the academic needs of university. According to our results it might be valuable to design interventions to help student with low adaptation to adjust better to their new situation, hereby

lowering the attrition rates. Furthermore, the results show that students in PBL do have problems with adapting to their new situation, even though we expected the adaptation to be rather high in the present setting. To investigate the influence of the educational method, it would be very interesting to compare the adaptation of students of a conventional university and a university which bases its education on PBL.

The adjustment assessed by the students shows correlations with actual student progress, especially for academic adjustment and attachment. However, these correlations are found to be weak. Our results indicate, furthermore, that tutors are also capable of predicting actual student progress by forecasting the adaptation and passing rate of students, as was found in previous research as well (Alvidrez 1999; Hoge 1989; van de Watering 2006). The hierarchical regression analyses show that student academic adjustment explains only 7% of the variance. Also for the tutors from OM, academic adjustment plays a role besides the expected passing rate; however, this prediction is stronger than that of the students, explaining 20% of the variance. The tutors from AF can explain 23% of the variance with the expected passing rate. It is notable that the tutors from QM did not seem to be able to predict student progress. This is especially conspicuous in combination with the correlations between the tutors, since there is a correlation. This finding could be due to the fact that not all of the instructors in the QM course completed the student assessment questionnaire, thus providing incomplete data. Students' difficulties in learning methods in this course could also be a factor. In addition, the educational setting of the three courses might be an explanatory factor why the tutors differ in their prediction, as there are some differences in the application of the PBL. Perhaps tutors of OM and AF had more contact with their students, or got more information on their performance, and thus were able to better predict their progress. Moreover, the structure or organization of the course may give tutors different possibilities to assess their students on learning difficulties and motivation towards their studies, thus other information to base their predictions on. More research in these aspects is needed to draw a conclusion and act upon this. Despite these results, it is remarkable that tutors overall are better predictors of student progress than student self-report. A likely explanation for this is that tutors are more experienced compared to students in the academic world and are thus better able to assess student competencies.

Both, correlation and backward hierarchical regression show that tutors are capable of predicting actual student progress in their perception on academic adaptation and expected passing rate. Also students' own perceptions on academic adjustment predict their progress. A combination of tutors' perception and students' perception on adjustment to university as well as the expected passing rate by the tutor may help to find students at risk for dropping out of university in the future. The next step in the research of attrition is to examine whether students will benefit from interventions or innovations in a specific topic thus increasing their retention rate at university. Furthermore, we need to know more about assessing tutors' skills in supervising students before we can say something about each tutors' ability to make predictions. Besides this, the present study focuses on the first academic year; it would be interesting to see if retention and study success improve after the first

year. A long-term follow-up on the students could give insight in attrition rates after the first year.

It needs to be taken into consideration that this study focuses on a PBL setting in business education. There might be differences in adaptation of students in different areas of study and across universities and educational settings. Although the quality of the predictions in this research is rather low, it is a valuable start in the research of attrition using the staff as a source. However, more research is needed to confirm that staff members are useful in predicting student progress in the first year, and consequently diminish attrition through early detection and intervention.

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Part III
Increasing Flexibility Through Technology

Transforming the Business Education Value Chain with E-Learning Technologies

Evidence from a Principles Course at a Private US University

Noah P. Barsky and Anthony H. Catanach Jr.

Introduction

Business schools today increasingly are challenged by changing stakeholder expectations. They face pressures from increased operating costs, rising tuition, competition, and new, more rigorous accreditation standards. Just as technology has dramatically changed business practices in recent decades, educational institutions increasingly are turning to e-learning platforms like Blackboard/WebCT to improve the effectiveness and efficiency of their key educational processes.[1]

Despite this significant market move toward automating the delivery of education, many business educators have been reluctant to embrace such technologies due to concerns about the time needed to master such tools, as well as academic integrity issues. In fact, Adler et al. (2000) found that while business educators recognize that innovative teaching methods are desirable, they have not been widely adopted because of inadequate educator support mechanisms and instructor resistance to change pedagogical methods. Many business educators also incorrectly believe that e-learning platforms are for online/distance learning courses exclusively (Dunbar 2004). Additionally, DiMeglio (2006) and McCabe et al. (2006) report widespread concern in business schools about academic integrity and many administrators and instructors believe that electronic, online assessment will only increase cheating. Robinson and Hullinger (2008) report that the increase in the adoption of Internet-related technologies for university learning has been accompanied by a parallel, but a demand for greater accountability and benchmarking in higher education. This chapter addresses these administrator and educator concerns and shows how e-learning technologies can be used in traditional business school classrooms, as well as hybrid and distance learning courses to achieve broad educational objec-

[1] At year-end 2008, over 5,000 educational institutions across 65 countries subscribed to Blackboard/WebCt services (Blackboard, Inc., Form 10-K).

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tives, while promoting academic integrity, and providing comprehensive data for assessment and accreditation initiatives.

This chapter consists of four sections. First, a brief review of the literature is presented. Next, the chapter introduces the educational value chain and discusses opportunities for automating traditional teaching-related activities. Then, specific strategies, implementation guidance, and examples are provided. Next, benefits and costs of adopting e-learning platforms are discussed. The final section reports student perceptions of e-learning platform use in a traditional introductory management accounting course.

Literature Review

Prior to 1997, most business education research focused on the classroom use of commercial business software (Bagranoff 1993) as well as spreadsheets and word processing software (Maher 1993; Heagy and Gallun 1994; Jensen and Sandlin 1995). At that time, Rebele et al. (1998) noted that there was little to guide business educators how to best integrate technology in the curriculum.

However, institutions such as the United Kingdom's Open University have heavily utilized distance learning technologies across a variety of disciplines for several decades.[2] In business education, Parker and Cunningham (1998) were among the first to document how technology can actually be used to free up class time for active learning group activities. They discussed how instructors could employ commercial software to make lecture notes available for review and self-study outside of class, thus reducing the need for in-class delivery of some traditional content. Subsequently, Bryant and Hunton (2000) reviewed business educational research on the use of technology in the instructional delivery. More recently, pedagogical research has dealt with isolated applications of specific classroom technologies. Gibson et al. (2008) report that, while faculty-perceived usefulness is a strong predictor of the likelihood of adoption, significant hurdles remain. Clearly, business educators have begun to realize the impact that technology can have on the education process.

This chapter extends Turner and Stylianou (2004) who employ the Five Forces Strategy Model developed by Porter (1979) and Porter and Millar (1985) to assess the operating environment in educational institutions and to explore how information technology (IT) can offer competitive advantage. Alavi et al. (1997) and Roosendaal et al. (2003) detail how technology can be a source of educational distinctiveness in a variety of business school settings. For example, Alavi et al. (1997) use video conferencing for student interaction across different campuses. Our chapter contributes to the literature by discussing key advances in e-learning platforms over the past decade to help administrators and instructors address a wider variety of education process issues, not just content delivery. A case example

[2] Details about the United Kingdom's Open University and its history can be found at the following website: http://www.open.ac.uk/about/ou/p3.shtml.

from our institution illustrates our adaptation and application of the value chain model to business education.

The Educational Value Chain

Classroom technologies have evolved dramatically over the past three decades. Structured learning platforms, streaming video, and asynchronous tools such as podcasting mark a dramatic departure from previous innovations such as individually designed course web pages (e.g., Microsoft FrontPage™), classroom content presentation and delivery tools (e.g., Microsoft PowerPoint™, video-conferencing), and electronic grading (e.g., Scantron™). New technologies challenge business educators to find ways to integrate them into both the content and delivery of business courses across the curriculum (David et al. 2003; American Accounting Association 2003). Carr (2003, 2006) describes the growing strategic importance of leveraging technologies in business organizations, and concludes that the highest potential areas for innovation may be in manufacturing processes or supply chain management. Similarly, e-learning platforms can play a huge role in promoting classroom innovation and improving educational processes.

A convenient way to think about how technology affects educational processes is to consider the concept of the *educational value chain*. This model as illustrated in Fig. 1 is an adaptation of the widely popularized business value chain concept proposed in Statement on Management Accounting 4X. The *educational value chain* is the set of inter-related activities or processes that all educational institutions use to deliver services to their stakeholders.

The strength of the value chain concept resides in the implicit requirement that those operational processes key to delivering a product or service are considered, analyzed, and managed in an integrated fashion. In a technology-based educational context, the value chain provides a framework for administrators and faculty to consider pedagogy and technology in the broader context of an institution's mission (Elloumi 2004). Table 1 illustrates how the educational value chain captures teaching-related activities found in business schools today and highlights specific ways that e-learning platforms can automate certain processes in each stage.

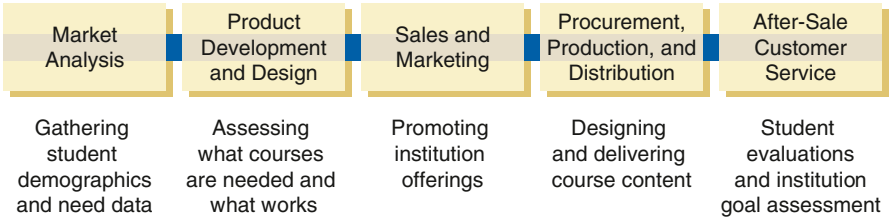

Fig. 1 The educational value chain. (Source: The model was adopted from the business value chain presented in IMA 1996)

Table 1 E-learning platforms and the educational value chain

Value chain stages	Common educational processes	Relevance of e-learning platform functions
Market analysis	Gathering student demographics and educational needs data	Pre-course surveys can provide valuable insight into student demographics, perceptions, and expectations. These data can be used to match faculty resources and create courses and curricula that best meet student needs
Product development and design	Evaluating demand for curriculum and need for specific types of learning structures	Student feedback about specific course components, technology availability, workload expectations, etc. can help faculty and administrators create, pilot, and deliver new courses and/or revise existing classes
Sales and marketing	Promoting course and institution offerings	Announcement functions provide a convenient and effective way to notify faculty and students of campus events, career placement, and other important news
Procurement, production, and distribution	Designing and delivering course content	The core functions of e-learning platforms enable faculty to deliver course content, assignments, and assessments. Students rely on these platforms to access materials, interact with fellow students, complete assignments, take exams, and track grades. This paperless forum provides real-time and permanent access to educational resources, faculty feedback, and potential learning portfolio components
After-sale customer service	Evaluating student performance and assessing institution goal achievement	Surveys allow students to evaluate courses in more detail than traditional classroom teaching evaluation questionnaires. Faculty and campus administrators can use such data to assess course and program quality, achievement of strategic goals, and student learning

The first stage, *market analysis,* can provide important information about student learning needs and preferences. Market analysis surveys can easily be created using the assessment functions found in today's e-learning platforms. Since matching faculty and administrative resources appropriately to meet market demand is fundamental to a business school's or business program's success, such information is critical in deciding which educational markets to serve and, more specifically, which courses to offer. Student survey data can be particularly useful in tailoring a curriculum to specific backgrounds, experiences, and interests. E-learning assessment tools also allow administrators and instructors to more frequently identify, summarize, and evaluate changing student preferences which facilitates proactive strategy development to better the dynamic education markets.

With an understanding of student expectations and needs, educators next must decide how to develop and design courses that meet market needs. Therefore, the *product development and design* process is a critical educational value chain activity. During this stage, educators require information on well specific courses and

their components working to achieve educational objectives. E-learning platforms provide a wealth of data to aid in product development and design. In addition to basic assessment output, e-learning tools provide instructors with data on which students have accessed course materials, how frequently they have done so, as well as when they last did. Educators also can monitor how long students spend on particular exam questions. Similar to organizations that bring new products to market, the feedback provided by e-learning platforms can be used to revise existing courses or develop new ones.

The next phase, the *sales and marketing* function, typically includes activities focused on securing sales commitments. In a business education context, e-learning platforms through their announcement functions provide an efficient and effective means by which to promote a department's and college's semester activities, or disseminate administrative information. Many routine announcements related to such activities as career planning events, speaker visits, etc., which students may overlook in an inundated e-mail environment, can be prominently displayed on individual course home pages. An institution's active use of e-learning technologies itself can be used as a promotional tool by senior campus administrators to attract potential program applicants, employers, and campus recruiters.

However, perhaps the greatest contribution of an e-learning platform to the educational value chain resides in the *procurement, production, and distribution* phase: the delivery of educational content. In addition to virtually eliminating all paper and printing costs, this technology provides faculty with a means to develop, manage, and revise instructional content on an ongoing basis during a course. E-learning platforms offer a variety of basic electronic tools useful in class administration including the course syllabus, announcements, and a course readings library. Effective use of these tools allows instructors to better manage classroom time, deliver more course content, motivate student-centered learning, and provide timely feedback on assignments and other assessments. The next section details the use of these tools in an introductory management business course and discusses classroom advancements that would not otherwise be feasible in a traditional paper environment.

The last stage of the educational value chain is *after-sale customer service*. Businesses commonly provide after-sale service activities like warranties, product updates, and technical support through web-based resources. Once again, the survey tools found in E-learning platforms provide educators with valuable course-specific feedback not generally captured in traditional classroom teaching evaluations. More importantly, administrators can access both current and past courses to determine whether department or college goals are being addressed and tested. Access to such data is becoming more critical as accreditation bodies increasingly emphasize assessment data. E-learning platforms allow an accreditation reviewer electronic access to the content of an entire course or curriculum to determine the degree to which students are learning and whether a program actually is achieving its educational objectives. Students also can access materials after they have completed the course to build a personalized learning portfolio and review readings or web references that may be useful in other courses.

Collectively, the educational value chain allows educators to think more broadly about their role in their institution's mission. Automation of the educational value chain through the use of e-learning platforms can create numerous efficiencies, modernize educational delivery, and integrate numerous activities and objectives within a business school's operations.

Course Design and Delivery Using E-Learning Platforms

Course Design

Each institution may employ some unique pedagogical model that faculty must consider in course design. E-learning platforms can enhance the face-to-face, physical meeting components of a traditional in-person course. For example, a three-day-per-week course could be designed according to the following general structure: The first day might be dedicated to a physical meeting in which the instructor delivers a mini-lecture over assigned chapter materials. The second class day could be physical or electronic and might require students to display their basic understanding of chapter content in a graded short case or exercise. The final class day could be devoted to the electronic assessment of learning objectives and electronic student submission of team-based assignments. Such an approach offers several distinct advantages. First, the ability to deliver all course assignments and assessments electronically makes the course completely paperless thus facilitating the creation and maintenance of individual student learning portfolios. The use of electronic assessment tools also adds significant efficiencies and consistency to instructor grading and timely student feedback.

The aforementioned course design has been used for the past two years in the introductory management business course at a private university. E-learning platforms have played a major role in implementing this unique course design. The paperless nature of the course requires students to rely completely on the course web sites for syllabus delivery, content dissemination, and assessment. Students learn what is required for the course each week by accessing learning modules (electronic folders) which highlight syllabus learning objectives, class requirements, as well as any individual or group assignments for the week.

In this management accounting course, the instructor also uses the e-learning platform to directly connect the textbook and related assignments with a third-party web-based business planning simulation. For example, the instructor creates an electronic assignment that references a specific text homework exercise. Students then are required to submit their work electronically through an online assignment "dropbox," and await electronic instructor feedback. General feedback for individual assignments is provided via the announcement function for the whole class, while more specific student or group feedback is imbedded in each student's or group's individually graded assignment.

The course relies on a third-party business planning simulation (www.capsim.com) to help students appreciate the relevance and importance of basic management business concepts (i.e., budgeting, Balanced Scorecard, etc.). This simulation requires students to use management business information to make executive decisions as they compete in teams in the electronic sensor industry. Each week student teams prepare and upload their management decisions in a planning spreadsheet. The simulation reports the "industry" results and student teams analyze performance by completing a series of business planning assignments from their textbook. The e-learning platform seamlessly bridges student preparation, textbook content, and team activities.

This e-learning technology also enhances physical classroom discussions since students are required to complete and submit their advanced preparation of cases to be discussed in class. In fact, a portion of the physical class meeting often is dedicated to students testing the effectiveness of submitted materials (i.e., electronic spreadsheets) using the assessment function. The quality of student work can be easily and objectively assessed by requiring students to change certain numbers in the worksheets they have submitted and to report the updated results. Using these electronic tools quickly conveys the message to students that they must be prepared for class discussions and that homework submissions must be accurate and reusable.

E-learning platforms also give students unlimited access to all of the course materials. Private discussion boards, white boards, and chat rooms allow student teams to interact and exchange ideas about course material and assignments. As might be expected, the sheer volume of student engagement promoted by this course would not be possible in a traditional paper environment.

Student Assessment

Electronic assessment tools also play a major role in reinforcing content delivery in this management accounting course. Almost every Friday, students complete an on-line quiz covering that week's topical content. To reinforce learning, students may elect to retake the quiz and earn a higher grade. As will be discussed in the next section, each student on each attempt receives his/her own unique quiz based on a randomized question pool created by the instructors.

Student quiz feedback is immediate with text pages and solutions provided to facilitate learning. On Fridays, student groups also submit a teamwork product for a specific component of the text's semester long business application. Additionally, student teams prepare management decisions for electronic submission to a third-party on-line business simulation as well as electronic team peer evaluations. The weekly peer evaluations are intended to control any group "free-riding" and to provide instructors with ongoing insight about such behaviors during the semester. While our quiz administration and peer evaluation tools may provide incentives to reduce cheating and free-riding, our study did not specifically assess their impact either on academic integrity or learning.

Exam Question Databases

A question test bank is key to the weekly quiz and exam assessment in this management accounting course. Textbook publishers now commonly provide electronic test banks that can be easily uploaded into e-learning platforms. Additionally, instructors can adapt publisher test banks or create their own question sets using a low-cost software application, known as Respondus (www.respondus.com). In fact, the Respondus Test Bank Network provides instructors with a central location for locating and obtaining commonly available publisher test banks that are in Respondus format. Respondus also easily allows instructors to import and export exam databases across courses, e-learning platforms, and from publisher test banks.

Benefits and Costs of E-Learning Platforms

Benefits

During the past decade, business school administrators and educators have been challenged to be more innovative in the design and execution of courses and curricula. Historically, most faculty have perceived innovation as the adoption of a new course or curriculum. However, using e-learning platforms to transform the educational value chain to make it more effective and efficient provides educators with a way to display innovativeness. E-learning technologies also provide a number of specific benefits. These are summarized in Table 2.

Randomized Exams

A major benefit of using e-learning platforms for testing is the ability to randomize answers to multiple choice exam questions as well as the order in which exam questions are presented to students in a test. Business instructors are very familiar with the manual process of preparing multiple versions of paper exams in their efforts to mitigate student cheating. E-learning platforms virtually eliminate this administrative headache.

Individual Student Exams

E-learning platforms also allow instructors to create unique individual exams for each student. To use this feature, faculty must create question test banks that are coded by type of question, topical coverage, level of difficulty, etc. Once this is done, the technology can randomly select questions from test bank pools, so that each student receives a different test with the same type of question (multiple choice, true-false, matching, etc.), the same level of difficulty, over the same mate-

Table 2 E-learning platform assessment benefits

Benefit	E-Learning platform features
Randomized exams	E-learning platforms allow instructors to randomize both answer and question order
Individualized student exams	Instructors can create different individual exams for each student by drawing from question pools organized by question type, learning objective, and/or rigor
Unique calculation problems	Computational problems with common fact patterns can be created in which e-learning platforms generate random numbers for each question. Instructors create solution formulas, variable parameters, and answer tolerances
Location and time flexibility	E-learning exams eliminate the need for classroom space at specific times, and students can take exams anywhere that has high-speed Internet access
Efficient and accurate grading	Assignments and exams can be automatically graded and transferred to individual student grade records, thus freeing instructor time and eliminating grading errors
Timely student feedback	Students can receive immediate feedback after quizzes and exams including scores, answer explanations, computational solutions, and reference to specific course reading materials
Learning reinforcement	E-learning platforms enable all students to take different self-grading quizzes over the same topics multiple times
Special needs accommodations	Students with special learning needs can be more easily accommodated with extended time or audio support. Assessments also can be selectively released at alternative times to accommodate student travel, illness, etc.
Permanent exam records	Exams are stored in electronic form for as long as an institution requires for possible subsequent review by students, university administrators, or accreditation bodies

rial. When coupled with a realistic test time constraint, and if questions are released one at a time with no student backtracking permitted, and the aforementioned randomization is used, "effective" cheating can be virtually eliminated.

Unique Calculation Problems

Calculation problems are a staple on quizzes and exams in quantitative business courses (i.e., statistics, finance, accounting, economics, market research, etc.). The e-learning platforms now allow instructors to use their favorite computational problems in quizzes and tests, but the numbers used in each question change for each student tested. Amounts in each question are replaced by variables for which the instructor specifies ranges and computes a solution. Again, this assessment feature greatly reduces the possibility of effective cheating, since each student gets the same problem, but with different numbers. Another valuable feature is that instructors can set answer tolerance ranges, so that students get credit for an answer even if it is not exact, which often occurs when students round their numbers.

Location and Time Flexibility

Students no longer need to take quizzes and exams at a specific location (i.e., the classroom) or time. Instructors also can more easily accommodate student-scheduling conflicts related to illness, athletics, and other absences. Additionally, make-up quizzes and tests can more easily be scheduled and delivered. Finally, classroom time previously used for assessment can now potentially be used for other purposes such as discussion and interaction.

Efficient and Accurate Grading

When calculation, matching, multiple choice, and true-false questions are used in assessment instruments, e-learning platforms eliminate the need for instructor grading. Students can gain access to their score and test results immediately after they submit their quiz or exam. Not only is the instructor now free from grading, the technology eliminates any possibilities of grading error.

Timely Student Feedback

As noted above, if instructors so desire, students can learn their grade and test results immediately after they submit their quiz or test. More importantly, students can instantly see what questions they answered incorrectly, the correct answer or solution, and text page references to help them understand the nature of their error. The authors' classroom experience indicates that student inquiries on exam or quiz questions are greatly reduced when electronic assessment is used.

Learning Reinforcement

Another potential benefit offered by e-learning platforms is the option to allow students to take quizzes or tests multiple times. The instructor can decide which score the student receives and how many attempts he will be allowed. Allowing students to take the highest score for the attempts made, encourages students to retake the quiz or exam. Remember, when students retake the quiz or test, they get a different assessment instrument since question selection is randomized. Clearly, such an approach leads to learning reinforcement.

Special Needs Accommodation

Over the past decade, the number of students requiring special testing accommodations has soared. Meeting these needs in a paper environment imposes an increasing burden on faculty. However, in a paperless, electronic testing environment, special

quizzes or tests that meet the unique needs of students can easily be created and administered.

Permanent Exam Records

Finally, when properly used, e-learning platforms eliminate the need for paper as all course materials, submissions, and assessments are electronic. This means that each individual student's performance on each and every assignment can be stored electronically for as long as an institution desires. In effect, an institution can maintain a permanent electronic record for each student, so that students, administrators, and accreditation bodies can refer to it as necessary. Such permanent records require reliable university technology support and data storage. Such systems must be also able to conceal student names for confidentiality purposes, if sharing data beyond course purposes.

Costs

In addition to the obvious technology costs of purchasing, implementing, and maintaining e-learning platforms, the most frequently cited administrator and faculty objection to using these tools is the investment required to learn these new technologies. This concern is indeed legitimate. For example, to initially adopt and implement the e-learning platform described in the above management business course, the instructor devoted approximately ten extra hours per week over a 16-week semester to learn the technology and integrate it into his teaching approach. Most of this time was devoted to creating unique question test banks that would maximize the assessment functions offered by the e-learning platforms. In subsequent semesters, the instructor began to recoup this initial 160-hour investment through grading and other course management efficiencies.

However, if e-learning platforms are adopted on a department- or college-wide basis rather than on an individual instructor basis, the "learning curves" and related costs can be dramatically reduced. For example, departments can assign course coordinators for individual courses to learn and implement these technologies for a specific course. This means that not all instructors have to be "experts" in every aspect of the e-learning platforms. Furthermore, graduate students or administrative staff can be used to prepare test banks for e-learning assessments. Commitments to teaching the same courses over multiple semesters and peer support from experienced faculty may reduce common resistance, complaints, and anxieties. This further reduces faculty time needed to adopt these technologies.

Also critical to the adoption and integration of an e-learning platform is that each student has reliable and ready access to high-speed Internet through either a personal or campus personal computer. Nothing will destroy acceptance of this technology more quickly (either by faculty or students) than unreliable course

access, frozen computer screens, and the like. Such concerns will be mitigated as broadband Internet access becomes more widespread and personal computer costs decline. Students also must be able to access the course materials electronically at their own convenience. Such access depends on coordination with registration systems, library rights to course content, and agreements by universities with content providers.

Student Perceptions

University-standardized, lecture-based teaching evaluations provide only limited insight into the effectiveness of e-learning tools and student perceptions of such technologies. Consequently, we attempted to gather such student perceptions through an anonymous survey at the end of their courses.

Student Demographics

From January 2007 through May 2009, we collected data from 284 undergraduate students at a private university in the northeastern United States. The students were almost all sophomores (approximate age 20) of Caucasian descent who had finished high school in the top 20% of their class. All students were enrolled in principles of management accounting, a required business course. Student enrollments reflect a generally equal number of males and females each year. Additionally, almost none of the students were transfer students or from a foreign country, and virtually all identified English as their primary language. The sample in this study is reflective of our enrolled population during the research period.

Student Instrument and Results

Our survey questions were extracted from a more comprehensive research study conducted by Salaway and Caruso (2007).[3] The instrument's purpose was solely to collect student perceptions about e-learning technologies, not to establish causal relationships between any pedagogical variables. Therefore, no conclusions can be drawn regarding the instrument's external or internal validity. All questions used Likert scales, ranging from 1 (strongly disagree) to 5 (strongly agree). The results are reported in Table 3. All reported data in the tables are mean scores and standard deviations of student perceptions.

[3] The EDUCAUSE survey instrument is available for public access at http://www.educause.edu/ECAR/StudentsandInformationTechnolo/15863.

Table 3 Student perceptions of e-learning platform assessment benefits

Item (1 = strongly disagree to 5 = strongly agree)	*n* = 284 mean (std. dev.)
I have had extensive experience using e-learning tools prior to this course	3.74 (0.95)
My management accounting course utilizes e-learning tools more than my other courses	4.78 (0.52)
The e-learning platform in my management accounting course was easy to use	4.27 (0.77)
The e-learning platform in my management accounting course was well organized	4.41 (0.66)
I prefer to take web-based exams and quizzes over paper-based testing	3.34 (1.12)
My management accounting course utilizes e-learning tools to provide prompt feedback on assessments	4.42 (0.72)
Web-based testing in my management accounting course reduced the likelihood of cheating	3.42 (1.03)
Receiving prompt feedback on my work is valuable to me	4.62 (0.59)
My management accounting course utilized e-learning tools to integrate material from different resources	4.01 (0.74)
Web-based simulations are an effective way to learn key management accounting topics	4.28 (0.75)

Students reported that the management accounting course extensively used e-learning tools (4.78) and that the tools were easy to use (4.27) and well organized (4.41). The students value prompt feedback (4.62) and reported that the course tools helped to provide prompt feedback (4.43). They found that e-learning tools integrated materials from various sources (4.01) and that the simulation was an effective way to learn (4.28). They were somewhat neutral on whether they prefer electronic exams over paper exams (3.34) and whether e-learning tools reduced the likelihood of cheating (3.41).

Overall, as shown in Table 4, the students responded positively to the benefits of e-learning tools in helping them to keep track of course deadlines (4.01), save time (3.89), stay organized (4.02), track performance (4.39), and reinforce learning (3.81).

Table 4 Student perceptions of the role of the e-learning platform in meeting student learning needs

Item (1 = strongly disagree to 5 = strongly agree)	*n* = 284 mean (std. dev.)
E-learning tools (i.e., WebCT Vista or Blackboard) in my management accounting course helped me to:	
Keep on track with course deadlines	4.01 (0.90)
Save time this semester	3.89 (0.875)
Stay organized this semester	4.02 (0.77)
Keep track of my performance in the course	4.39 (0.68)
Reinforce my learning of important course topics	3.81 (0.75)
E-learning tools improved the overall quality of the learning experience	4.03 (0.89)
Future offerings of this course should rely less on e-learning technologies	2.46 (1.14)
All other factors being equal, in the future, I would prefer to take a version of a class that utilizes e-learning tools	3.85 (0.84)

Additionally, they agreed that e-learning tools improved the learning experience (4.03), and should be used in the future offerings of the course (3.85). Standard deviations greater than one suggest that student perceptions may vary and instructors must carefully consider effects of similar implementations on different populations.

Limitations

Rebele et al. (1998) suggest that no curriculum innovation can be considered a "one-size-fits-all" proposition for all accounting programs. Consequently, there are three potential limitations that should be acknowledged. First, since our discussion relies on the university where it was developed, student demographics and a variety of other issues should be considered that potentially could limit its effectiveness at other implementing institutions. Next, these results reflect student perceptions at one university in the business school at the sophomore level. Other institutions may find different results. Additionally, non-US teaching environments may show different results due to cultural reasons. It may not be viable at institutions where investments in technology are lacking. Finally, the e-learning approach initially requires a large time commitment and significant preparation by adopting faculty to insure its successful and lasting implementation. Any successful curriculum revision depends on clearly defined learning objectives and strong leadership. Therefore, program coordinators should carefully consider how faculty can be encouraged to adopt and maintain the e-learning system.

Conclusion

Feedback from students suggests that the use of e-learning platforms more actively and regularly engages them with course content and may serve to eliminate academic integrity issues. Additionally, institutional support and resource commitment to e-learning platforms can vary, and strong on-campus technical support is essential to maintain and update campus information systems. Nevertheless, technology is permeating all aspects of the business world and business educators need to carefully consider how technology will be meaningfully integrated into core educational processes (Mitchell 2003). The examples set forth in this paper illustrate the dramatic impact that e-learning platforms can have in shaping effective and efficient curriculum delivery. Our delivery took place in a blended environment which included live teaching, while other institutions may rely solely on distance learning for delivery and use of e-learning tools.

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The Effects of Virtual Groups on Learning Outcomes in an ITV Delivered International Business Course

Cori J. Myers and Peter A. Huegler

Introduction

As distance-education technology moves the classroom from beyond four walls to anywhere in the world, instructors are faced with opportunities as well as challenges to actively engage students in the learning process. Instructors possess opportunities to integrate cutting-edge technologies into their pedagogy, but at the same time must assure their strategies effectively and promote learning, encouraging students to thoughtfully interact with course content and each other. Active learning "… involves students in doing things and thinking about what they are doing" and includes such activities as classroom discussion, writing, and group work, among others (Bonwell and Eison 1991). This study considers how communication technologies and various in-class, group learning strategies influence learning in an international business course delivered via interactive television (ITV)—also referred to as video conferencing. Two sections of this course, one face-to-face and one ITV, were recently taught by one of the authors. Students in both sections completed the same in-class and out-of-class group assignments; however, the ITV groups were virtual. They consisted of both home- and remote-site students, and the group work, assignments, and presentations were computer-mediated (ITV, video chat, etc.). This study questions whether such active learning strategies as group work and critical discussion combined with use of communication technologies can promote learning as effectively in an ITV class as in a face-to-face class. Do differences exist between ITV and face-to-face students' level of interaction, learning outcomes, and perceptions of learning?

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Background

Based upon decades of research, Chickering and Gamson (1987) outlined seven principles of good practice in undergraduate education. Their findings revealed that students learn best when they have contact with students and faculty, work cooperatively, experience active learning, receive prompt feedback, allocate realistic amounts of time to learning, work to meet high expectations, and respect diversity. As it relates to pedagogy, this research encouraged instructors to use classroom learning strategies that include substantial interaction among participants; involve group work; and use such active learning methods as writing, discussion, and problem solving. Despite the fact the traditional lecture remains the most widely used course delivery method, these foundational principles continue to underlie current research on effective pedagogy (Pascarella and Terenzini 2005).

Research does not suggest eliminating lecture, but rather integrating it with other teaching and learning strategies that appeal to diverse learners who bring to the learning process different backgrounds, experiences, preconceptions, and approaches to learning (Donovan and Bransford 2005; Whetten and Clark 1996; Chickering and Gamson 1987). Donovan and Bransford (2005) highlight three fundamental principles of learning, the first of which focuses on addressing the knowledge and experiences students possess as they enter a course or program. They assert that classroom discussion either support or challenge those preconceptions and provide clear links between students' prior knowledge and current course material. Not only must faculty consider students' preconceptions, but the second learning principle suggests that faculty carefully choose the core concepts of the discipline and organize the knowledge around those core concepts. Donovon and Bransford stress organizing these concepts within a conceptual framework that provides an appropriate context for understanding, and then providing students with varied ways in which to apply these concepts. Building upon Flavell's (1979, 1987) definition of metacognition (individual knowledge of one's cognitive processes or one's thinking), the third principle focuses on students' ability to understand how they learn, how much they learn, and how to make changes to learn better. Developing metacognitive skills enables students to think more deeply about course concepts and learn more effectively.

Similar to Chickering and Gamson's calls for interaction, cooperation, and active learning, Donovan and Bransford (2005) suggest using such active learning strategies as group work and discussions to involve students in the learning process where they can monitor and question their own understanding of issues. Student involvement or engagement generally includes classroom activities that incorporate such active learning as class discussion, small group work (think-pair-share), and writing exercises as a follow-up to the instructor's presentation of course content (Bonwell and Eison 1991). Students may interact with faculty and their peers while doing such things as discussing case studies, sharing personal experiences, role playing, performing simulations, peer teaching, and debating issues. Donovan and Bransford (2005) carefully point out that instructors must establish classroom

norms that encourage students to ask and answer questions, express ideas, and take risks. This community-centered approach rewards students for their willingness to vet any and all ideas regardless of the perceived "rightness" of their thoughts.

Combining the community-centered approach with various learning strategies promotes learning outcomes requisite for success in the business world. Although learning outcomes emanate from many influences, research suggests that student involvement or engagement represents one of these factors (Ewell 2002; Klein et al. 2005; Pascarella and Terenzini 2005). Several studies suggest that student involvement in the learning process relates positively to such outcomes as knowledge acquisition, cognitive development, interpersonal skills, and educational attainment (Pascarella and Terenzini 1991; Astin 1984). Of particular interest to public universities that serve as institutions of access, students with lower scholastic aptitude test (SAT) scores tend to benefit from student engagement more than those students with higher SAT scores (Carini et al. 2006).

While research suggests that these interactions tend to influence positively critical thinking skills (Pascarella and Terenzini 1991), well-designed curricula and active learning strategies not only facilitate acquisition of disciplinary knowledge (Donovan and Bransford 2005), but also communication skills, interpersonal skills and group work, adaptability, and creative thinking (Kember and Leung 2005). Furthermore, curricular design should emphasize multiple opportunities to practice skills (Whetten and Clark 1996; Donovan and Bradsford 2005). Students who problem-solve, practice writing, and receive feedback tend to have greater knowledge gains and skill development (Kuh 2003).

Consistent with Chickering and Gamson (1987), these findings suggest that student involvement in the learning process promotes learning outcomes. Moreover, Johnson et al. (2007) assert that carefully designed cooperative learning serves as a particularly effective active learning method enabling students to learn complex material and retain it long-term. Cooperative learning involves students working in teams on structured assignments to accomplish shared learning goals. Research indicates that students not only learn and retain material, but also develop positive interpersonal relationships and communication skills, greater psychological health and well-being (including self-confidence), and higher-order thinking skills (Johnson et al. 2007). Similarly, Garrison and Anderson (2003) assert that collaborative approaches to learning produce higher-learning outcomes by developing a community of learners, a community "…composed of teachers and students transacting with the specific purposes of facilitating, constructing, and validating understanding, and of developing capabilities that will lead to further learning" (p. 23). Consistent with Donovan and Bransford (2005), creating a community of learners allows for a community of critical inquiry where students experience profound learning from opportunities to personally reflect upon ideas, resolve misconceptions, and extensively dialogue among participants.

Although cooperative learning may facilitate knowledge acquisition and skill development, some challenges may inhibit the effectiveness of this pedagogical approach especially for those instructors who teach via distance education. Research suggests that better group performance and greater individual learning outcomes

emerge from collaborative settings where the participants experience high levels of interactivity in performing such tasks as defining problems, brainstorming solutions, evaluating alternative solutions, and making decisions (Cohen et al. 2002). However, Roberts and McInnerney (2007) duly note seven perils of group learning ranging from attitudinal issues of students whom despise group work, free ride, or withdraw from the group to other such issues as group selection, group composition, lack of group skills, and assessment of group work and learning outcomes. Although these issues serve as barriers to group effectiveness with higher levels of student interaction and may become more complicated for distance education, thoughtful consideration in the selection and sequencing of course content, learning activities, and assessment methods may mitigate such influences (Garrison and Anderson 2003; Marjanovic 1999).

To address distance education, information and communication technologies provide several options that instructors can integrate into their repertoire of teaching methods. Both synchronous and asynchronous communication can augment any course regardless of delivery method. Hrastinski (2008) suggests that synchronous communication occurs through such media as videoconferencing and chat rooms and increases individual motivation to learn, while asynchronous communication takes place through such media as e-mail and discussion boards and tends to facilitate reflection on complex issues and ability to process information. Instructors may encourage students to use a variety of communication technologies to support cooperative learning. Synchronous and asynchronous communication technologies tend to complement one another enabling an increase in overall interactions among students and between students and faculty (Hrastinski 2006). These technologies support the application of Chickering and Gamson's (1987) principles of good undergraduate education to distance education whereby students interact with each other, with the instructor, and with course content (Shi and Morrow 2006).

While Garrison and Anderson (2003) acknowledge that communication technologies offer an array of delivery methods, they advocate for instructors to carefully craft a learning approach that integrates these tools and facilitates critical reflection, discourse, and knowledge construction. To promote deep learning, their three-part community of inquiry framework requires elements of critical thinking (cognitive presence), open and full communication among participants (social presence), and effective design and facilitation from the instructor (teaching presence). They assert that sustained verbal communication can establish an extensive cognitive, social, and teaching presence in the learning process; however, written communication among participants can also address these elements with opportunities for reflection and critical thinking. Writing across the curriculum literature indicates that writing facilitates such learning outcomes as content knowledge, communication skills, and critical thinking (McLeod 2001). In distance learning, verbal communication is mediated most often through synchronous technologies and written communication through asynchronous technologies. Although Garrison and Anderson's research focuses more on e-learning in an asynchronous environment, their research certainly supports using both synchronous (verbal communication) and asynchro-

nous technologies (written communication) to foster critical thinking and social construction of knowledge for computer-assisted learning.

Many of the studies on information and communication technologies as they relate to distance education have been conducted within the context of the online (web-based) learning. This study integrates communication technologies, applies principles of good undergraduate education and learning, and develops a community of inquiry in an ITV course in order to compare ITV students' interactions, perceptions, and learning outcomes with face-to-face students.

Course Design

One of Pennsylvania's small public, liberal arts universities simultaneously delivered business courses to its main and branch campuses. In the fall 2008 semester, the university offered two sections of international business; one delivered entirely face-to-face on main campus and one delivered via ITV with a home (main campus) and one remote (branch campus) site. This study's sample included students enrolled in the face-to-face section (27 total students) and students enrolled in the ITV section (28 total students: 22 main campus students and 6 branch campus students). Both sections were taught by the same instructor.

Enrollment numbers and student demand were the underlying factors driving course offerings for the sites. Significantly more students enroll at main campus which required nearly two course sections of international business to be offered that semester. Teaching a face-to-face course at the branch campus with small enrollment is cost prohibitive; therefore, the university reserved an adequate number of seats for branch campus students to enroll in the ITV section while main campus students could choose to enroll in either section. Essentially, these course design decisions were made to promote greater efficiency and instructional productivity, not for facilitating student learning or for research purposes. The authors identified these administrative decisions as an opportunity to research and compare the two delivery modes while controlling for some of the variables like instructor differences and course content.

The basic instructional design of the course remained the same for both sections. Students received the same lectures, reading material, graded assignments, and group work. The only differences between the face-to-face section and the ITV section were the technology-mediated, student/faculty, and student/student interactions and group composition. All students participated in extensive in-class and out-of-class group work, including discussing issues in small groups; writing group responses to structured questions; and developing and delivering four group presentations. The instructor attempted to create diverse groups by assigning students to world area groups (e.g., Middle East, Far East, Latin America, Europe, and Africa) based on such characteristics as gender, ethnicity, and grade point average. For the ITV section, each of the six remote-site students was placed into a group with home-site students. This group structure was intended for students to encounter a

greater diversity of perspectives, increase interactivity with students in the entire class, and learn to use new technologies to communicate across distances.

On the first day of class, the instructor announced to the ITV section that the students would be working in groups comprised of students from both campuses and would be using such communication technologies as Skype™ and webcams for in-class group work. The students were asked to download Skype™ free of charge, while the university provided a sufficient number of webcams for each group at each site. The students were advised that they could certainly use other asynchronous technologies to augment communication across sites whether completing in-class or out-of-class assignments, but they should first try to complete assignments using the prescribed method. Students were asked to test the communication technology outside of class and were awarded extra credit for providing a screen shot of the trial communication link. A class period was also devoted to testing the technologies while completing in-class exercises. Several adjustments were made to reduce feedback and facilitate better group work. The webcams were used ten times during the semester for in-class group work.

Aside from testing the communication technologies, the course also included content related to effective group work. In a large group discussion, the instructor covered content relating to characteristics of effective group work. The students further discussed such attributes in small groups, and then as a class developed a team policy including disciplinary procedures to which all group members would be held accountable throughout the semester. A sample policy can be found in Appendix 1.

Data Collection and Analysis

The instructor collected data in several forms to assess learning outcomes and student perceptions of learning. At the end of the course, students in both sections took a final exam (in essay format) which was scored using a five-point rubric. This assessment was intended to measure knowledge acquisition. The rubric can be found in Appendix 2.

These students were also asked to conduct peer evaluations (on scale of 1–10). For each student, his or her peers' numeric scores were averaged. The peer evaluations also required a narrative justification for the rating by applying the contents of the team policy to the students' performance. The evaluations provided an indication of student perceptions of group work; however, they also were used to assess how well students understood and applied group work concepts and the team policy.

Finally, the students in both sections completed a survey (see Appendix 3 for the full survey). The survey indirectly measures level of interaction and perceptions of learning from group work in a computer-mediated setting. The survey covers the following areas: facilitation of learning, knowledge, group work, influence of instructor's use of technology, influence of student's use of technology, in-class use of technology, and out-of-class use of technology. The following section details the final exam, peer evaluation, and survey results.

Results

Student Characteristics

Student characteristics of the two sections are presented in Table 1. The columns "Male" and "Female" contain the number of male and female students in each section. The columns "grade point average (GPA)", "SAT verbal", and "SAT math" contain the mean for each of these student characteristics. The "Standing" column is the average number of credits attained prior to taking this class.

Although it appears that the ITV section has better GPA and SAT scores than the face-to-face course, no significant difference exists between the two sections. Table 2 presents the statistical comparison of the characteristics. There were several international students in the sections. These students do not have SAT scores and represent the numbers listed under columns labeled NA.

Direct Assessment of Learning

Average final exam results (knowledge acquisition) and peer evaluations scores (application of group work concepts) are reported in Table 3. The columns under the "ITV" heading contain the mean of the scores, count, and number of NA for the

Table 1 Section makeup

Section	Male	Female	GPA	SAT verbal	SAT math	Standing
Face-to-face	14	10	2.82	470.91	482.73	83.33
ITV	13	14	2.95	475.77	508.08	87.56

Table 2 Section comparison

	Face-to-face			ITV			*p*-values		
Statistic	Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
GPA	2.82	24	0	2.95	27	0	0.3980	0.4040	0.3453
SAT verbal	470.91	22	2	475.77	26	1	0.8076	0.8131	0.6781
SAT math	482.73	22	2	508.08	26	1	0.2032	0.2156	0.2760
Standing	83.33	24	0	87.56	27	0	0.4684	0.4585	0.5517

Table 3 Analysis of direct assessment instruments

	Face-to-face			ITV			*p*-values		
Assessment	Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
Final exam	3.96	24	0	4.27	26	1	0.1268	0.1275	0.1214
Peer evaluation	9.37	24	0	9.22	26	1	0.5566	0.5552	0.3641

ITV section. The columns under the "face-to-face" heading contain the same data for the face-to-face section. The "*p*-value" columns contain the results of three tests of statistical significance. The columns "t-test 1" and "t-test 2" contain the *p*-values for students' t-test. The "t-test 1" column is the result for the test assuming unequal variances and the "t-test 2" is the result for the test assuming equal variances. The last column "MW-test" contains the *p*-value for the Mann-Whitney test. The Mann-Whitney test is included as an additional test of significance due to the small sample sizes.

Comparison of average scores between class sections shows no significant difference in learning outcomes as measures of knowledge acquisition or applying group work skills. Similarly, when comparing the average scores within the ITV section (home- versus remote-site students), no significant difference exists.

Student Perceptions of Course Elements and Learning Strategies

Table 4 includes the survey results of student perceptions of learning for such specific course elements as organization of course material, quality of learning materials, lecture, in-class writing, chapter exercises, article reviews, oral presentations, student/student interaction, student/faculty interaction, and use of technology. For most elements, no statistical difference existed between ITV and face-to-face student perceptions. Of particular interest to this study, questions eight and nine measure the students' perceptions on student/student and student/faculty interaction. When asked how well group work including student/student interaction facilitated learning in the course, no significant difference exists between the average ratings. Moreover, students in both sections rated student/faculty interaction somewhat high with average ratings of 4.15 for the ITV section and 4.13 for the face-to-face course (with no significant difference between the sections).

Despite high levels of interaction, students in the ITV class reported significantly lower perceptions of lectures (question 3) and oral presentations (question 7). These two learning activities were delivered using technology in the ITV section.

Student Perceptions of Learning Course Content

Students were also asked to what extent they could explain the relationship of nine key course topics to international business (Table 5). When comparing groups by course delivery methods, no statistical significance existed in eight of the nine areas. ITV students reported less gains in learning how to apply key functional areas (e.g., human resources, finance, marketing, legal issues, and information technology) to

Table 4 Survey results for course elements

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Please rate how well the following course elements facilitated your learning in the course									
1	Organization of the course material	4.58	24	0	4.52	27	0	0.6887	0.6929	0.8870
2	Quality of text and supplemental learning materials	4.33	24	0	4.11	27	0	0.2758	0.2822	0.3424
3	Lecture	4.42	24	0	3.78	27	0	0.0051**	0.0058**	0.0090**
4	In-class writing activities	4.17	24	0	3.81	26	1	0.1980	0.1983	0.1470
5	Chapter exercises	4.13	24	0	4.08	25	2	0.8284	0.8282	0.8194
6	Article reviews and short papers	4.21	24	0	3.81	27	0	0.1134	0.1178	0.1562
7	Oral presentations	4.50	24	0	3.93	27	0	0.0347*	0.0395*	0.0670
8	Group work including student/student interaction	4.08	24	0	3.70	27	0	0.2264	0.2328	0.2984
9	Student/faculty interaction	4.13	24	0	4.15	26	1	0.8905	0.8905	0.9659
10	Use of technology	4.00	24	0	3.37	27	0	0.0535	0.0595	0.1308

*$p < .05$
**$p < .01$

Table 5 Survey results for learning outcomes

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	As a result of your work in this class, how well can you explain the relationship of the following concepts to international business									
11	Differences in culture	4.46	24	0	4.30	27	0	0.3322	0.3397	0.4512
12	Economic systems	3.96	24	0	3.93	27	0	0.8796	0.8809	0.9674
13	Political systems	3.92	24	0	3.78	27	0	0.4793	0.4872	0.4957
14	Trade theory	3.83	24	0	3.70	27	0	0.6178	0.6156	0.7797
15	Foreign direct investment	4.04	24	0	3.96	27	0	0.7545	0.7573	0.9276
16	Regional economic integration	3.67	24	0	3.63	27	0	0.8779	0.8776	0.9840
17	Monetary systems	3.67	24	0	3.63	27	0	0.8873	0.8867	0.8272
18	Entry strategy	4.25	24	0	4.23	26	1	0.9334	0.9331	0.8240
19	Key functional areas	4.67	24	0	4.15	27	0	0.0037**	0.0044**	0.0076**

**$p < .01$

international business (question 19). There was a heavier reliance on computer-mediated learning activities to deliver this content.

Student Perceptions of Technology Use

The instructor taught all students with the assistance of various technologies. All class sections were delivered in classrooms outfitted with SMART Boards. SMART Boards enabled the instructor to use such aids as PowerPoint, video, and web sites to augment lectures. Additionally, ITV was also used to deliver the course to the remote site. In the survey, students were asked to rate how the instructor's use of technology influenced their level of interaction in and out of the classroom, their interest in the course material, or their ability to learn (Table 6). ITV students perceived that technology less positively influenced their ability to learn as compared to students in the face-to-face section (question 41).

The ITV students also perceived that their own use of technology (used to complete the group assignments) less positively influenced their ability to learn the material as compared to the face-to-face section (question 47 in Table 7). Students' use of technology also influenced their interest in the course material differently, again less positively in the ITV section (question 46). This result is close to being statistically significant (p-values near 0.05).

Interestingly, ITV students' final presentations demonstrated excellent application of concepts and good facility with technology. Statistically, the ITV section performed better on the presentations (the t-test p-value is 0.0002). The ITV section averaged 34.7 (out of 40) and the face-to-face section averaged a 32.9.

Student Perceptions of Group Work

When asked more specifically about learning course concepts and various group skills while working in groups, the ITV section indicated that they learned significantly less than the face-to-face section in some skill areas listed in Table 8. There were significant differences for negotiating with group members (question 28) and building positive relationships (question 29). Although not all results were significant, the ITV students consistently rated learning course concepts and specific group skills lower than did face-to-face section students.

Although both student sections used technology to complete group work in and out-of-class, there was a significant difference of the types of technology used (Table 9). Students in the ITV class used instant/text messaging and video chat significantly more in and out-of-class than face-to-face students who used the cell phone significantly more than the ITV students outside of class. Both sections on average used the computer and e-mail to a large degree to complete group work in and out-of-class.

Table 6 Survey results for instructor's use of technology

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Compared to other courses, please rate how the instructor's use of technology in this courses...									
36	Influenced your level of interaction with the instructor in the classroom	4.00	23	1	3.42	26	1	0.0390*	0.0435*	0.0598
37	Influenced your level of interaction with the instructor outside of the classroom	3.65	23	1	3.42	26	1	0.2647	0.2641	0.1940
38	Influenced your level of interaction with other students in the classroom	4.13	23	1	3.85	26	1	0.2752	0.2872	0.4327
39	Influenced your level of interaction with other students outside of the classroom	3.87	23	1	4.00	26	1	0.5931	0.5979	0.5737
40	Influenced your interest in course material	4.04	23	1	3.73	26	1	0.1795	0.1924	0.2108
41	Influenced your ability to learn course material	4.39	23	1	3.58	26	1	0.0017**	0.0021**	0.0039**

*$p < .05$

**$p < .01$

Table 7 Survey results for student's use of technology

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Compared to other courses, please rate how your use of technology in this courses…									
42	Influenced your level of interaction with the instructor in the classroom	3.74	23	1	3.58	26	1	0.4927	0.5008	0.4526
43	Influenced your level of interaction with the instructor outside of the classroom	3.61	23	1	3.54	26	1	0.7688	0.7741	0.5095
44	Influenced your level of interaction with other students in the classroom	3.87	23	1	3.74	26	1	0.5797	0.5909	0.7583
45	Influenced your level of interaction with other students outside of the classroom	3.96	23	1	3.96	26	1	0.9838	0.9841	0.9325
46	Influenced your interest in course material	4.04	23	1	3.58	26	1	0.0533	0.0589	0.0651
47	Influenced your ability to learn course material	4.17	23	1	3.35	26	1	0.0010***	0.0012**	0.0012**

**$p < .01$

***$p < .001$

Table 8 Survey results for group work

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	While working in groups, I learned to…									
27	Apply course concepts	4.33	24	0	3.93	27	0	0.1135	0.1196	0.1419
28	Negotiate with other group members	4.54	24	0	3.96	27	0	0.0338*	0.0362*	0.0157*
29	Build positive relationships with group members	4.67	24	0	3.96	27	0	0.0127*	0.0148*	0.0062**
30	Manage tasks effectively	4.33	24	0	3.89	27	0	0.0742	0.0782	0.0701
31	Share responsibility	4.54	24	0	3.96	27	0	0.0639	0.0659	0.0111*
32	Resolve conflict	4.08	24	0	3.56	27	0	0.1153	0.1180	0.1003
33	Communicate effectively	4.63	24	0	4.19	27	0	0.0732	0.0801	0.0924
34	Solve complex problems	4.08	24	0	3.81	27	0	0.3621	0.3746	0.6988
35	Use new technologies	3.50	24	0	3.78	27	0	0.3770	0.3855	0.2023

*$p < .05$

**$p < .01$

Table 9 Survey results for technology used

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Rate your group's use of the following technology during class hours for course group work									
48	Computer	4.08	24	0	4.32	25	2	0.4243	0.4227	0.4598
49	E-mail	3.71	24	0	4.04	25	2	0.4009	0.4004	0.2968
50	Instant message/text message	2.21	24	0	3.72	25	2	0.0001***	0.0001***	0.0003***
51	Webcam/video chat	1.17	24	0	3.88	25	2	0.0000***	0.0000***	0.0000***
52	Cell phone	2.33	24	0	2.28	25	2	0.8854	0.8857	0.8102
	Rate your group's use of the following technology outside of the class hours for course group work									
53	Computer	4.88	24	0	4.68	25	2	0.1044	0.1062	0.1085
54	E-mail	4.79	24	0	4.68	25	2	0.4290	0.4315	0.5294
55	Instant message/text message	2.75	24	0	3.6	25	2	0.0317*	0.0314*	0.0405*
56	Webcam/video chat	1.08	24	0	3.16	25	2	0.0000***	0.0000***	0.0000***
57	Cell phone	3.33	24	0	3.08	25	2	0.5347	0.5363	0.5880

*$p < .05$
***$p < .001$

Discussion

While research suggests that active learning strategies and student engagement promote learning, ITV courses and computer-mediated learning may encounter more challenges than face-to-face learning to implement such strategies successfully. With computer-mediated learning, the potential noise in the communication channel caused by distance and technology may inhibit learning. Even so, this study suggests that students in ITV courses can maintain interaction with classmates and the instructor, work in teams, and demonstrate learning outcomes as effectively as students in face-to-face classes. Results from the final exam, peer evaluations, oral presentations, and the instructor's additional insights suggest that students in the ITV course understand and apply core concepts at least as well as students in the face-to-face class.

Although the research explains the importance of integrating active learning, much of this work seems to include a common thread, namely that students must experience high levels of interaction with each other, with the instructor, and with course material for active learning truly to be effective. Consistent with such research on learning strategies (Chickering and Gamson 1987; Donovan and Branson 2005; Johnson et al. 2007; Garrison and Anderson 2003; Cohen et al. 2002; Bonwell and Eison 1991), both course sections used various active learning strategies and relied heavily on group work, critical discussion, reflection, and writing to engage students with others and the material. Although the ITV format may lessen opportunities to elevate interaction among participants in these and other learning activities, students' perceptions between sections generally reflected similar interactions with each other during class and outside of class and with the instructor outside of class. In reviewing all responses pertaining to interaction, the ITV students' overall ratings suggested that their interactions were not statistically different than the face-to-face students; however, ITV students did indicate that the instructor's use of technology in class somewhat more negatively influenced their interactions.

The instructor's perceptions affirmed these insights. Moreover, from the instructor's perspective, student/faculty interaction occurred frequently in-class and out-of-class with students from both sections. The instructor facilitated discussion, posed questions, and answered questions during class to elicit interaction with students in both sections. To involve all students in large discussions, the instructor would call on them to answer questions, including students at the remote site. The instructor also frequently communicated with students via e-mail about relevant information for classroom activities and assignments. Although student/faculty interaction was frequent, the instructor felt that the in-class dialogue with ITV students lacked flow and was inhibited slightly by the delays between sites and by intermittent breaks in the audio of the students' microphones. The instructor perceived that interaction for ITV students was lessened somewhat by technological errors; however, consistent with Chickering and Gamson (1987) and Donovan and Bransford (2005), the instructor felt confident that numerous, varied learning strategies (including use of technologies) and frequent feedback were used throughout the course to enable all students to learn. Similarly, the instructor observed a high level of student/student interaction

during in-class group work although breaks in audio and video would sometimes interrupt work. Even so, the instructor observed in both sections frequent interaction and productive group work as demonstrated by the quality of conversation and "reporting out" on in-class assignments and by the quality of the presentations given.

The fairly high, yet equal levels of interactions reported by both sections may result not only from the instructors' use of various active learning strategies, but also from the students' and instructors' use of communication technologies to supplement interaction in the classroom. Hrastinski (2006) asserts that using both synchronous and asynchronous communication technologies increases overall interactions among students and between students and faculty in distance-education courses. Moreover, Garrison and Anderson (2003) suggest that deep learning can be achieved through verbal and written communication mediated by synchronous and asynchronous technologies. As stated, students in both sections rated overall student/faculty interaction equally (4.13 face-to-face versus 4.15 ITV), but more specifically, ITV students rated classroom student/faculty interaction lower. This finding may suggest that the use of various communication technologies between students and faculty, especially outside of class, significantly mitigates losses caused by in-class technology use to the point where students experienced no difference in overall interactions.

Although little difference in perceived interactions and actual student learning outcomes exists, the ITV students perceived they learned less about course content when using technology and working in groups. This finding may relate to generational characteristics of this student demographic. This course enrolled primarily traditional-age undergraduate students; members of the millennial generation. Oblinger and Oblinger (2005) characterized this generation as being digitally literate and wanting the convenience of on-line materials and homework submissions, yet desiring face-to-face interaction. They reported that these students consistently rank face-to-face interactions high in the learning process and "…feel that something important to their learning is missing when all interactions are mediated, whether asynchronous or synchronous" (Oblinger and Oblinger 2005, p. 2.11). While students' learning outcomes were comparable between sections, these studies may support why students perceived they learned less. In-class, student/faculty interactions were computer-mediated during such learning activities as lecture and large group discussion which may also partially explain why ITV students felt they learned less from lecture.

When asked how well several course elements facilitated learning, the ITV students indicated they learned less than face-to-face students from oral presentations, lecture, and use of technology. Both oral presentations and lecture were entirely computer-mediated learning activities. Oral presentations required ITV members from both sites to jointly prepare their presentation using communication technologies and deliver it via videoconferencing. Lecture for the remote site not only required technological assistance, but required the instructor to remain at the podium to capture audio and video. From the instructor's perspective, these requirements were constraining and uncomfortable for delivering material and did not facilitate non-verbal communication as much at either site. Furthermore, student perceptions of lecture seemed to parallel research that criticizes the effectiveness of this learning strategy (Pascarella and Terenzini 2005); however, surprisingly, both sections

rated lecture above the use of group work and technology for facilitating learning. Also, as compared to face-to-face students, the ITV section perceived that the use of technology in general did not foster the same level of learning.

ITV students also reported less learning about the key functional areas; a course content area which was delivered primarily through computer-mediation. Since the students enrolled in this upper division class should already have taken specific courses in these functional areas, the instructor emphasized this material using independent learning and research, group work, and oral presentations. Not surprisingly, this lower rating mirrored the student perceptions of learning course material from oral presentations, lecture, and the use of technology. Again, students' perceptions of use of technology in learning perhaps skewed how much they perceived they actually learned from computer-mediated learning activities. Interestingly, the instructor's observations revealed that these students were quite adept at using technology and that computer-mediated, in-class group assignments revealed a level of involvement and understanding on par and sometimes better than the face-to-face section. Similarly, compared to the face-to-face section, the instructor perceived the presentations given by the ITV students to be of equal or higher quality and delivered as effectively.

Learning key functional areas also used considerable group work. This millennial-generation research asserts that these students possess not only technological literacy, but also a collaborative disposition and are team-oriented which may have positive implications for using group work in the learning process (Howe and Strauss 2007; Oblinger and Oblinger 2005). Also, collaborative learning studies (Donovan and Branson 2005; Johnson et al. 2007; Garrison and Anderson 2003) suggest that group work helps students think more deeply about the subject matter and learn more effectively. Although Oblinger and Oblinger (2005) suggest that millennials seem more collaborative and team-oriented for some activities, Roberts and McInnerney (2007) explain that some students do possess negative attitudes about the use of group learning.

On average, students in both sections reported the least amount of learning from use of technology followed by use of group work. These less positive perceptions of group learning may stem not from what students actually learned, but from their dislike for group work as a learning activity and dealing with such issues as meeting times, slackers, or interpersonal conflicts. Moreover, ITV students' perceptions of learning less about group work and from group work seems consistent with the desire for more face-to-face interactions in the learning process. For the ITV class, group work was computer-mediated throughout the course which reduced the face-to-face component of student interaction in the learning process. Although the instructor observed high interaction levels during group work and the direct assessments show no significant difference in learning, these students believe they learned less from group work which was used extensively throughout the course.

This study shows that students' perceptions of learning can vary from actual learning outcomes and from what the instructor perceives. Although research suggests that such active learning strategies as group work and use of technology provide great pedagogical tools, students may not view them as positively. Additionally, when comparing an ITV course to a face-to-face course, students may maintain similar levels of interaction and learning even though their perceptions of learning differ.

Limitations

Some limitations do exist in this study. For example, main campus students could self-select which course section, ITV or face-to-face, in which to enroll. Potentially, those students who were more comfortable and more likely to learn from computer-mediated settings may have been more likely to register for the ITV course. Beyond self-selection, issues may exist with the generalizability of these results. Samples were selected by convenience rather than a random process. This sample included only business majors, and as such, students at this university may not be representative of all business students or all university students as a whole. Moreover, the small sample sizes ($n=24$ for the ITV section and $n=27$ for the face-to-face section) also may limit the generalizability of the results.

Finally, this study's results may have been confounded by Hawthorne effects whereby students may behave differently (e.g., exert more effort and work harder) if they believe they are being treated differently and studied. Although Hawthorne effects are certainly possible, the researchers did try to control for them by maintaining as much similarities between sections and by not disclosing to the students that they were research subjects until the end of the course. The survey administration (including consent forms) was not completed until after all course requirements were met.

Implications for Research and Practice

Research strongly suggests that computer-mediated learning and group learning offer instructors and students opportunities to construct a meaningful understanding of course material as well as develop fundamental critical thinking, communication, and teaming skills; however, this study reveals that students perceive computer-mediated and group work learning as less effective in this regard. While further research should delve into understanding why traditional-age students have less positive perceptions of computer-mediated and group learning, instructors who use these techniques and technologies should dialogue with students to help allay these misconceptions and foster a more positive and accurate student outlook about courses that use these methods. Donovan and Bransford (2005) suggest that learners bring to the learning process preconceptions about content knowledge and that instructors facilitate critical discussion that clarifies how well prior knowledge connects to course material. Further, instructors should enable discussion to reveal more about how students learn and how to make changes in learning. Critical discourse not only about how students learn, but about how communication technologies and group work can be used to facilitate this learning should also take place when courses commence, especially for distance-education courses. This critical discussion may address misconceptions that students have about distance learning, communication technologies, and group work and allow students to resolve issues with regard to such strategies. Similarly, as academic advisors assist advisees in making course selections, they may want to consider talking with students about the

documented learning outcomes associated with distance learning and group work when recommending courses that involve either.

As suggested by the research (Donovan and Bradford 2005; Kember and Leung 2005; Johnson et al. 2007; Pascarella and Terenzini 2005; Garrison and Anderson 2003), thoughtful organization of the course material, selection of learning strategies (including technologies), and development of assessment methods must precede the actual delivery of the course. Moreover, the intended learning outcomes should be clearly connected to the course content and learning strategies. Although instructors should think widely about how they can integrate communication technologies into learning strategies, they should deliberate on how their use of synchronous and asynchronous technologies can effectively create opportunities to accomplish specific learning objectives.

In an ITV setting, this deliberation should also point to how instructors create a community of learners that can openly engage in discourse and critical thinking. This study's course design intended to apply principles of good undergraduate education and learning by involving all students at both sites in the learning process through a variety of active learning strategies (Chickering and Gamson 1987; Donovan and Bransford 2005; Bonwell and Eison 1991). Not only did these learning strategies include group work which used verbal and written communication to deepen learning, but purposefully integrated computer-mediated learning where small groups comprised of students from both sites used synchronous and asynchronous technologies to form a community of learners who engaged in discussion of course content and development of group projects. In this study, considerations for using webcams, for example, were specifically intended to encourage more verbal communication among group members at both sites to foster a cognitive and social presence as suggested by Garrison and Anderson (2003). The results indicate that these learning strategies, when combined with communication technologies, can be as effective and, in some cases, more effective than face-to-face learning. Regardless of whether a course is delivered face-to-face, ITV, or online, instructors may find benefits of using communication technologies to varying degrees to facilitate learning.

When dealing with a remote site with a very small number of students, instructors may want to consider inter-site groups so students do not remain isolated as a small, independent group at the remote site. Instead, integrating these students enables the whole class to more fully become a community of learners and to engage in discourse and share perspectives. In line with Chickering and Gamson (1987), inter-site groups will increase the number of students (and therefore perspectives) with whom each person encounters as well as increase the amount of student/student interaction.

To facilitate open interaction needed for a community of learners/inquiry, Donovan and Bransford (2005) advocate for instructors to establish classroom norms that will foster sharing of ideas and make students comfortable. In both sections, all classmates participated in discussing and establishing team policies which did help establish norms. Moreover, the instructor augmented these efforts by establishing course guidelines for professional behavior (including respecting others); rewarding class participation by acknowledging the merit of different perspectives and

including participation as part of the course grade; and for the ITV class, taking class time to test technologies and encouraging students (through extra credit) to test the technologies. In addition to active learning strategies, these techniques may have facilitated better student/faculty and student/student interaction as reported by students in both classes. This finding suggests that conscious and varied efforts to establish norms and make students feel comfortable may be particularly important for computer-mediated learning.

Conclusion

In today's business world, technology influences work processes and communication. Increasingly, work teams are dispersed throughout the world and complete work over great distances. To prepare students for life and work in this global business community, educational institutions may consider integrating learning opportunities where students complete computer-assisted group work. This study provides some evidence that courses with computer-assisted instruction/group work/learning activities promote learning outcomes as effectively as entirely face-to-face instruction. Such success may be attributed to course planning and implementation of pedagogically-sound practice as outlined in this chapter. However, these data consistently show that students perceive these learning methods to be less effective in learning course content. This finding warrants further research as to why students feel this way despite their course performance. Although this generation of traditional-age college students is characterized as being digitally-literate, these students may feel less comfortable with using technology in some aspects of the learning process and especially to complete group projects and deliver group presentations. Educational institutions may want to address such issues and appropriately integrate these learning opportunities into program curriculum to better prepare business students for the work world.

Appendix 1

This is an example of a group policy.

Policy

During the fall 2008 semester, students in the international business class must comply with the following team policy. This policy outlines expected behaviors, responsibilities, and attitudes to which each group member will be held accountable. Failure to comply with the policy will result in disciplinary action as stated in this document.

Behaviors, Responsibilities, and Attitudes

Communication

- Establish means of effective communication
- Communicate ideas clearly and openly
- Notify members in advance any conflicts and provide timely follow-up
- Providing constructive feedback and share concerns
- Listen to and respect everybody's ideas

Workload and responsibilities

- Share equally in the work and give 100% effort
- Set group goals, divide responsibilities, and remain focused
- Attend class/group meetings and be prepared
- Participate actively and make relevant contributions
- Complete group assignments on time
- Assure peer review of the final product

Professional behavior and attitudes

- Act professionally
- Support each other
- Cooperate willingly
- Remain flexible
- Have fun!

Disciplinary Action

If a group member does not participate with his/her group in accordance with the aforementioned behaviors, responsibilities, and attitudes, the group member can face discipline up to and including dismissal from the group. If a violation of the "team policy" occurs, the team holds the responsibility to impose progressive discipline including the following:

- First offense: informal discussion with group members (verbal warning).
- Second offense: written statement of unacceptable behavior copied to the instructor (written warning).
- Third offense: dismissal from the group after review of documentation by group and instructor (dismissal). Students dismissed from a group will receive a zero for any and all remaining group assignments.

Appendix 2

Table 10 is the rubric used to score the final exam.

Table 10 Final exam rubric

Question #1	*Good definition (1)*		*Poor or no definition (0)*	
What is international business?	Provides a response that defines international business as being business located in more than one country. May include exporting and FDI		Provides a response that does not define international business	
Question #2	*Excellent (4)*	*Good (3)*	*Fair (2)*	*Poor (1)*
Discuss the major influences on managing an international business	Discusses 6–8 major influences covered during the course including economic systems, political systems, legal systems, monetary systems, theories related to FDI and trade, strategy, structure, culture and ethics	Discusses 4–5 major influences covered during the course including economic systems, political systems, legal systems, monetary systems, theories related to FDI and trade, strategy, structure, culture and ethics	Discusses 2–3 major influences covered during the course including economic systems, political systems, legal systems, monetary systems, theories related to FDI and trade, strategy, structure, culture and ethics	Discusses 1–0 major influences covered during the course including economic systems, political systems, legal systems, monetary systems, theories related to FDI and trade, strategy, structure, culture and ethics

Appendix 3

The following is the complete survey used to measure the students' perceptions. All questions were scored on a scale from 1 to 5. For questions 1–35 and 48–57, the scale was defined as in Table 11. For questions 36–47, Table 12 presents the scale definition.

Table 13 presents the survey questions with the means for each section and the statistical analysis results. The columns under the "ITV" heading represent the ITV section and the columns under the "face-to-face" heading include results for the face-to-face section. The "*p*-value" group of columns shows the results of the statistical analysis. Four statistical tests were performed; student's t-test assuming unequal variances ("t-test 1"), student's t-test assuming equal variances ("t-test 2") and the Mann-Whitney test ("MW-test"). *P*-values <0.05 are considered significant.

Table 11 Question scale #1

Answer	Rating
1	Very little/none
2	A little
3	Somewhat
4	A lot
5	A great deal

Table 12 Question scale #2

Answer	Rating
1	Decreased greatly
2	Decreased somewhat
3	No influence
4	Increased somewhat
5	Increased greatly

Table 13 Survey questions

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Please rate how well the following course elements facilitated your learning in the course									
1	Organisation of the course material	4.58	24	0	4.52	27	0	0.6887	0.6929	0.8870
2	Quality of text and supplemental learning materials	4.33	24	0	4.11	27	0	0.2758	0.2822	0.3424
3	Lecture	4.42	24	0	3.78	27	0	0.0051**	0.0058**	0.0090**
4	In-class writing activities	4.17	24	0	3.81	26	1	0.1980	0.1983	0.1470
5	Chapter exercises	4.13	24	0	4.08	25	2	0.8284	0.8282	0.8194
6	Article reviews and short papers	4.21	24	0	3.81	27	0	0.1134	0.1178	0.1562
7	Oral presentations	4.50	24	0	3.93	27	0	0.0347*	0.0395*	0.0670
8	Group work including student/student interaction	4.08	24	0	3.70	27	0	0.2264	0.2328	0.2984
9	Student/faculty interaction	4.13	24	0	4.15	26	1	0.8905	0.8905	0.9659
10	Use of technology	4.00	24	0	3.37	27	0	0.0535	0.0595	0.1308
	As a result of your work in this class, how well can you explain the relationship of the following concepts to international business									
11	Differences in culture	4.46	24	0	4.30	27	0	0.3322	0.3397	0.4512
12	Economic systems	3.96	24	0	3.93	27	0	0.8796	0.8809	0.9674
13	Political systems	3.92	24	0	3.78	27	0	0.4793	0.4872	0.4957
14	Trade theory	3.83	24	0	3.70	27	0	0.6178	0.6156	0.7797
15	Foreign direct investment	4.04	24	0	3.96	27	0	0.7545	0.7573	0.9276
16	Regional economic integration	3.67	24	0	3.63	27	0	0.8779	0.8776	0.9840
17	Monetary systems	3.67	24	0	3.63	27	0	0.8873	0.8867	0.8272
18	Entry strategy	4.25	24	0	4.23	26	1	0.9334	0.9331	0.8240
19	Key functional areas	4.67	24	0	4.15	27	0	0.0037**	0.0044**	0.0076**

Table 13 (continued)

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	To what extent did you make gains in any of the following areas as a result of course activities									
20	Applying course concepts	4.29	24	0	4.07	27	0	0.2795	0.2810	0.2954
21	Applying relationships between concepts	4.21	24	0	3.81	27	0	0.1156	0.1178	0.1129
22	Relating concepts in this class to those in other classes	3.88	24	0	4.15	27	0	0.2531	0.2483	0.2471
23	Identifying the relevance of international business to real world issues	4.63	24	0	4.22	27	0	0.0305*	0.0303*	0.0171*
24	Appreciating the relevance of international business	4.54	24	0	4.42	26	1	0.4717	0.4757	0.6041
25	Thinking through a problem or argument in international business	4.04	24	0	3.78	27	0	0.2084	0.2162	0.2762
26	Identifying how international business impacts real life	4.58	24	0	4.38	26	1	0.3036	0.3048	0.2642
	While working in groups, I learned to									
27	Apply course concepts	4.33	24	0	3.93	27	0	0.1135	0.1196	0.1419
28	Negotiate with other group members	4.54	24	0	3.96	27	0	0.0338*	0.0362*	0.0157*
29	Build positive relationships with group members	4.67	24	0	3.96	27	0	0.0127*	0.0148*	0.0062**
30	Manage tasks effectively	4.33	24	0	3.89	27	0	0.0742	0.0782	0.0701
31	Share responsibility	4.54	24	0	3.96	27	0	0.0639	0.0659	0.0111*
32	Resolve conflict	4.08	24	0	3.56	27	0	0.1153	0.1180	0.1003
33	Communicate effectively	4.63	24	0	4.19	27	0	0.0732	0.0801	0.0924
34	Solve complex problems	4.08	24	0	3.81	27	0	0.3621	0.3746	0.6988
35	Use new technologies	3.50	24	0	3.78	27	0	0.3770	0.3855	0.2023

Table 13 (continued)

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Compared to other courses, please rate how the instructor's use of technology in this courses									
36	Influenced your level of interaction with the instructor in the classroom	4.00	23	1	3.42	26	1	0.0390*	0.0435*	0.0598
37	Influenced your level of interaction with the instructor outside of the classroom	3.65	23	1	3.42	26	1	0.2647	0.2641	0.1940
38	Influenced your level of interaction with other students in the classroom	4.13	23	1	3.85	26	1	0.2752	0.2872	0.4327
39	Influenced your level of interaction with other students outside of the classroom	3.87	23	1	4.00	26	1	0.5931	0.5979	0.5737
40	Influenced your interest in course material	4.04	23	1	3.73	26	1	0.1795	0.1924	0.2108
41	Influenced your ability to learn course material	4.39	23	1	3.58	26	1	0.0017**	0.0021**	0.0039**
	Compared to other courses, please rate how your use of technology in this courses…									
42	Influenced your level of interaction with the instructor in the classroom	3.74	23	1	3.58	26	1	0.4927	0.5008	0.4526
43	Influenced your level of interaction with the instructor outside of the classroom	3.61	23	1	3.54	26	1	0.7688	0.7741	0.5095
44	Influenced your level of interaction with other students in the classroom	3.87	23	1	3.73	26	1	0.5797	0.5909	0.7583
45	Influenced your level of interaction with other students outside of the classroom	3.96	23	1	3.96	26	1	0.9838	0.9841	0.9325
46	Influenced your interest in course material	4.04	23	1	3.58	26	1	0.0533	0.0589	0.0651
47	Influenced your ability to learn course material	4.17	23	1	3.35	26	1	0.0010***	0.0012**	0.0012**

Table 13 (continued)

Num	Question	Face-to-face			ITV			*p*-values		
		Mean	Count	NA	Mean	Count	NA	t-test 1	t-test 2	MW-test
	Rate your group's use of the following technology during class hours for course group work									
48	Computer	4.08	24	0	4.32	25	2	0.4243	0.4227	0.4598
49	E-mail	3.71	24	0	4.04	25	2	0.4009	0.4004	0.2968
50	Instant message/text message	2.21	24	0	3.72	25	2	0.0001***	0.0001***	0.0003***
51	Webcam/video chat	1.17	24	0	3.88	25	2	0.0000***	0.0000***	0.0000***
52	Cell phone	2.33	24	0	2.28	25	2	0.8854	0.8857	0.8102
	Rate your group's use of the following technology outside of the class hours for course group work									
53	Computer	4.88	24	0	4.68	25	2	0.1044	0.1062	0.1085
54	E-mail	4.79	24	0	4.68	25	2	0.4290	0.4315	0.5294
55	Instant message/text message	2.75	24	0	3.60	25	2	0.0317*	0.0314*	0.0405*
56	Webcam/video chat	1.08	24	0	3.16	25	2	0.0000***	0.0000***	0.0000***
57	Cell phone	3.33	24	0	3.08	25	2	0.5347	0.5363	0.5880

*$p < .05$
**$p < .01$
***$p < .001$

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Student Learning Preferences in a Blended Learning Environment: Investigating the Relationship Between Tool Use and Learning Approaches

Dirk T. Tempelaar, Bart Rienties and Bas Giesbers

Introduction

Learning about conceptually rich domains with computer-based learning environments (CBLEs) makes high demands on students' self-regulated learning (Azevedo 2008; Lajoie and Azevedo 2006). Required self-regulation competencies refer to main processes as planning (e.g. activating prior knowledge), monitoring activities (e.g. self-questioning, judgment of learning), strategy use (e.g. drawing, coordinating informational sources, knowledge elaboration), handling task difficulties and demands (e.g. help-seeking behaviour) and interest in the task or the content domain of the task (Greene and Azevedo 2009). No less than 35 specific self-regulation processes, such as monitoring progress towards goals (monitoring) or review notes (strategy use), are the building blocks of these general self-regulatory processes. This complex nature of learning with CBLEs has triggered different types of empirical research, ranging from enriching the CBLE with internal scaffolding functions that supports students' self-regulation, enriching the CBLE with external regulation, e.g. by a human tutor, and the investigation into crucial aspects of self-regulation in order to effectively learn in CBLEs (Greene and Azevedo 2009).

Our study builds on this body of research in the analysis of a related research question: how do students self-regulate their learning in a blended learning environment? But different from the research referred to above, in our study it is not the CBLE, but the other component of the blended learning environments that puts most demands on the students. In our study, we investigate revealed learning preferences of students studying economics or business who learn in a problem-based program that is supported with an adaptive e-tutorial to create a blended learning environment. The problem-based learning component is known to require high

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levels of self-regulation, whereas the adaptive e-tutorial is characterised by strong scaffolding and regulation shared by tool and student. The revealed preference relates the choices students make with regard to how intensive they learn with the e-tool, relative to their participation in the problem-based learning. The conceptual rich domain of our study is that of introductory statistics. Our blended learning environment consists of tutorials based on the problem-based learning principle, lectures and independent learning related to these tutorials, and an electronic learning environment based upon knowledge-space theory: the tool Assessment and LEarning in Knowledge Spaces (ALEKS)—Falmagne et al. (2006). Except for the tutorial sessions, for which attendance is required, students can set the intensity for each of the components of the blended learning environment according to their personal preferences. Some of these preferences become revealed, e.g. by measuring connect-time in the e-learning mode. This study aims to explain patterns in these revealed preferences by individual differences in learning styles or approaches to studying.

Not much research has been directed to the role of student learning styles and the existence of variability over students, in the area of statistics education. In her USCOTS 2007 plenary session, Utts (2007) provides an overview of several instruments available to measure student learning styles and some empirical outcomes of the application of these instruments. The main theme of her contribution is the mismatch that often exists between learning styles of students and preferred styles of lecturers. To avoid such mismatch, Pearl (2005) proposes a buffet system in which students are assessed on their learning styles and subsequently are matched to an educational setting that best accommodates individual student preferences. In such a setting, accounting for student variability takes place when the student is assigned to one unique educational setting; after this assignment, the instructional format is fixed. In this contribution, we investigate the relationship between revealed student learning preferences and learning styles in a setting that on the one side allows students more choice options, so bringing about more variation, and on the other side is not neutral with regard to learning styles: some are regarded as better fitting a university study than others, bringing about the goal of adapting student's preferences (see also Tempelaar 2002). The style instrument we use in this study can be characterised as typical for the European/Australian tradition of learning style research (Entwistle and Peterson 2004), and assesses students' learning dispositions with regard to information processing, approaches to learning, learning conceptions and learning orientations.

The aim of this research is to supplement studies, such as Azevedo (2008), which conclude that CBLEs may be that demanding for students that, in order to optimise learning, one better enriches the learning environment into full blended learning by adding human tutors, supporting especially students weak in self-regulation. But what about highly demanding formats of face-to-face instruction: can CBLEs also take the reverse position of supporting students lacking the self-regulation skills demanded in, e.g. problem-based learning? We investigate this question using a broad range of student background characteristics, of which learning style is a main component.

The Adaptive E-Tutorial System ALEKS

The ALEKS system is an intelligent tutoring system based on principles of knowledge-space theory, a branch of artificial intelligence (Falmagne et al. 2006). It combines adaptive, diagnostic testing with an electronic learning and practice tutorial in statistics, business statistics and several other domains relevant for higher education. The first pillar of ALEKS is the description of all such domains by a hierarchic knowledge structure that specifies the interdependencies between the individual items spanning the domain. This knowledge structure indicates what knowledge states are feasible and what are inconsistent. All these feasible knowledge states together constitute the knowledge space.

Second pillar of the system is the adaptive assessment engine that provides in an efficient way a probabilistic estimate of the knowledge state of any individual student. Based on that assessment, the system offers material that the student is best able to learn at a given time. In fact, the student can choose from two types of tasks: those belonging to the outer fringe, and those belonging to the inner fringe of the student's knowledge state. The outer fringe consists of new activities, not practiced before, for which the student masters all prerequisite items (new items ready to learn). The inner fringe consists of items the student has practiced before, but for which the mastery level is estimated less than complete (items suggested for review).

The ALEKS assessment module starts with an entry assessment in order to evaluate precisely a student's knowledge state for the given domain (e.g. business statistics). Following this assessment, ALEKS delivers a graphic report analysing the student's knowledge within all curricular areas for the course, based on specified standards. The report also recommends concepts on which the student can begin working; by clicking on any of these concepts or items the student gains access to the learning module. All problems of the assessment module are algorithmically generated, and require that the student produces authentic input (see Fig. 1 for a sample assessment item). The assessment is adaptive: the choice of each new question is based on the aggregate of responses to all previous questions. As a result, the student's knowledge state can be found by asking only a small subset of the possible questions (typically 15–25). Assessment results are always framed relative to specified educational standards that can be customized with a syllabus editor (part of the instructor module). Both the assessment and learning modules are automatically adapted to the chosen standards.

The learning report, of which Fig. 2 shows a part, provides a detailed, graphic representation of the student's knowledge state by means of pie-charts divided into slices, each of which corresponds to an area of the syllabus. In the ALEKS system, the student's progress is shown by the proportion of the slice that is filled in by solid colour. For example, this student has completed four from eight slices in business statistics. Ina can choose to start fulfilling the 11 lessons about inferences, 8 about regression, 12 about ANOVA or 10 about time series. Also, as the mouse is held

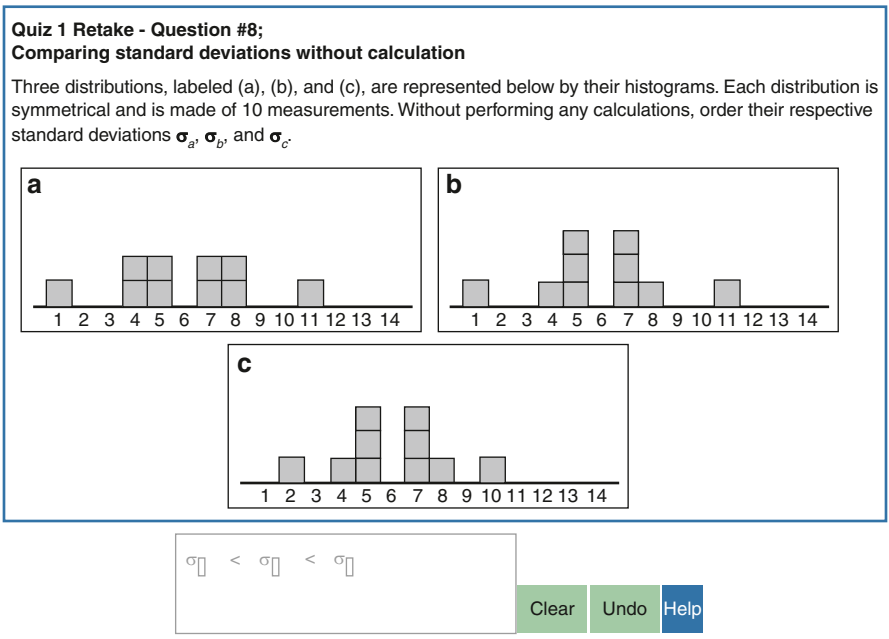

Fig. 1 Sample of ALEKS assessment item

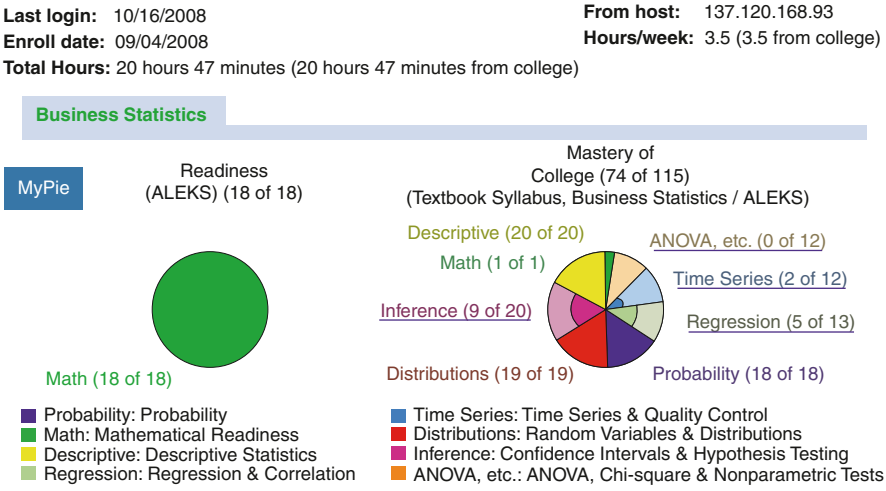

Fig. 2 Partial sample of ALEKS learning report

over a given slice, a list is displayed of items within that area that the student is currently 'ready to learn', as determined by the assessment.

At the conclusion of the assessment, ALEKS determines the concepts that the student is currently ready to learn, based on that student's current knowledge state. These new concepts are listed in the report, and the learning mode is initiated by clicking on any highlighted phrase representing a concept in the list. The focus of the learning mode is a sequence of problems to be solved by the student, representing a series of concepts to be mastered.

Measures

The Inventory of Learning Styles (ILS) instrument, developed by Vermunt (see Entwistle and Peterson 2004; Vermunt 1996; Vermunt and Vermetten 2004), has been used to assess preferred learning dispositions. Vermunt distinguishes in his learning-styles model four domains or components of learning: cognitive-processing strategies, metacognitive-regulation strategies, learning conceptions or mental models of learning and learning orientations. Each component is composed of five different scales, as described in Table 1. The two processing strategies Relating and structuring and Critical processing together compose the Deep-learning strategy, whereas Memorizing and rehearsing, together with Analysing, compose the Stepwise-learning strategy (also called surface learning in several theories of learning). Similarly, the two regulation scales Self-regulation of learning processes and Self-regulation of learning content together compose the strategy Self-regulation, hypothesised to be prevalent in deep-learning students. The two regulation scales External regulation of learning processes and External regulation of learning results constitute the External-regulation strategy, supposed to be characteristic for stepwise learners.

Both processing and regulation strategies used by the student are related to the view of the student on how learning best takes place, the learning conception or mental model of learning and the learning orientation. One example of such a

Table 1 Domains and scales of the inventory of learning styles

Processing strategies	Regulation strategies	Learning orientations	Learning conceptions or mental models of learning
Relating and structuring	Self-regulation of learning processes	Personally interested	Construction of knowledge
Critical processing	Self-regulation of learning content	Certificate directed	Intake of knowledge
Memorising and rehearsing	External regulation of learning processes	Self test directed	Use of knowledge
Analysing	External regulation of learning results	Vocation directed	Stimulating education
Concrete processing	Lack of regulation	Ambivalent	Co-operation

relationship is that constructivist learners, students who prefer to build their own knowledge, do so in general in a self-regulated way applying deep-processing strategies. This combination of self-regulation, deep learning, a constructivist conception and personal interest constitutes the first learning style of Vermunts' model: the meaning-directed learning pattern (Vermunt and Vermetten 2004). It contrasts the reproduction-directed learning pattern, which combines the stepwise-learning strategy and external regulation with the intake of knowledge conception, being certificate directed and self-test directed. The third and fourth learning styles are less strong, in terms of variation they explain and represent undirected learning (building on lack of regulation and co-operation next to ambivalence and need for stimulation) and the application-directed learning pattern (concrete processing, use of knowledge and vocation directed). Since in this study our prim interest is in understanding learning efforts, we will focus mainly on processing and regulation strategies, which are most directly related to learning efforts, and three learning conceptions, leaving the other variables outside the scope of study.

In addition to the ILS, attitudes or achievement motivations towards the subject statistics based on Eccles' expectancy-value theory (Eccles 2005; Wigfield and Eccles 2000, 2002; Wigfield et al. 2004) are measured with the instrument survey of attitudes toward statistics (SATS) developed by Schau et al. (1995; also see Dauphinee et al. 1997; Hilton et al. 2004). Expectancy-value models take their name from the key role of two components in the motivation to perform on an achievement task: students' expectancies for success and the task value, that is the value they attribute to succeeding the task. The SATS instrument measures four aspects of post-secondary students' subject attitudes: two expectancy factors that deal with students' beliefs about their own ability and perceived task difficulty: Cognitive Competence and Difficulty, and two subjective task-value constructs that encompass students' feelings towards and attitudes about the value of the subject: Affect and Value. Validation research has shown that a four-factor structure provides a good description of responses to the SATS-instrument in two very large samples of undergraduate students (Dauphinee et al. 1997; Hilton et al. 2004) for the subject statistics, and for a range of business subjects (Tempelaar et al. 2007). Recently, the instrument is incremented by two more attitudes scales: Interest and Effort, where the last scale represents the willingness of the student to invest time and other efforts in learning the subject. The naming of the Difficulty scale is somewhat counterintuitive, since in contrast to all other scales, lower scores and not higher scores correspond to higher levels of conceived difficulty. Therefore, the scale is mostly addressed with 'lack of difficulty' in the next sections.

Beyond effort and performance indicators derived from the e-tool (connect time 'HoursALEKS' and final mastery 'MasteryALEKS'), this study uses a second effort indicator: student activity in the course management system BlackBoard. Student activity in this system is not measured in time, but in number of clicks (BlackBoard-Clicks). Since functionality of BlackBoard changes over time, number of clicks in subsequent years are difficult to compare, and for that reason, that number is standardized for data of each of the cohorts under study. Since BlackBoard is no learning tool, measured activity in BlackBoard is hypothesized to be independent of any

learning approach. It signals the general level of student activity and acts as a benchmark for the ALEKS related effort data: to the extent that scores for HoursALEKS are higher than scores for BlackBoardClicks, other mechanisms play a role than the student demonstrating a lot of study activities. Next, a range of course-performance indicators in both statistics and mathematics is available, achieved with different assessment instruments being part of the course-performance portfolio: quizzes in mathematics (MathQz) and statistics (StatsQz), and a final written exam based upon subtopic scores mathematics (MathExam) and statistics (StatsExam).

Data and Statistical Analysis

Participants in this study were 4,655 first-year university students in two programs based on the principle of problem-based learning: international economics and international business studies. Data have been collected in six cohorts, ranging from the academic year 2003/2004 to the academic year 2008/2009. Somewhat more than one third of the participating students are female (36%), against 64% males. About one third of the students (34.1%) is of Dutch citizenship, the remaining 65.9% being international students, mostly from Germany. Distinguishing national from international students is relevant with regard to prior schooling in statistics: Dutch secondary school programs contain statistics as a major topic, several international programs do not.

In the first term of their first academic semester, these students took two required, parallel courses: an integrated course organizational theory and marketing, two subjects from the behavioural sciences domain and an integrated methods course mathematics and statistics. The methods course is supported by 'practicals'. Those for statistics are based on the e-learning environment ALEKS and allow for the measurement of user intensity operationalized as the number of connect hours into the system. Doing practicals is not a requirement and is especially beneficial for students who lack prior knowledge, need to refresh mathematics or statistics due to schooling discontinuities and/or experience methods courses as difficult. Therefore, data on practicals are not representative for students' learning efforts in the whole course.

During the start of the course, and as part of the fulfilment of a required student project for statistics, students filled several self-report questionnaires on learning related characteristics. Because participants come from six consecutive cohorts, performance measures as quizzes and final exams are scored with equivalent, but not identical instruments. Quizzes are administered in the assessment mode of ALEKS and are thus strongly tied to the performance in the learning mode. Due to both large sample sizes and collinearity amongst most individual difference data, direct relationships between students' preferences for e-learning and learning characteristics or outcomes of the learning process are not very informative. These relationships are nearly always statistically significant, but cannot easily distinguish between direct and indirect effects. For that reason, our main analytical tool will

be to compare correlations between e-learning preferences and student background factors with correlations between learning outcomes and the same student background factors. The latter correlations serve as benchmarks in the assessment of the role of e-learning preferences in the learning process. As will be clear from next section, gender differences exist in the intensity of using the e-tool. Therefore, in each of the analyses, the correlation of gender (dummy for female students) and the student characteristic is included, as to allow the assessment if gender differences might play a role in explaining e-learning intensity.

Results

On average, students spend 23.9 h in ALEKS; somewhat more than 25% of total learning time of 80 h available for introductory statistics. In this amount of time spent on e-learning, students achieve an average mastery level of 45% of available items in ALEKS. However, strong variability over students exists. Of all items the ALEKS module contains, 60% are relevant for our introductory course. So with regard to mastery of items, a ceiling effect at the level of 60% mastery is to be expected. The adaptive entry test the ALEKS module starts with determines the entry point of any student in the module. For that reason, ALEKS time and ALEKS mastery will be different indicators both for differences in time spent on average in each item and the level of the entry point. Figure 3 displays descriptive characteristics of connect time and mastery, after having split for gender, since the data demonstrates clear gender differences. These differences are not only statistically significant, but also very substantial. This contrasts students' learning efforts

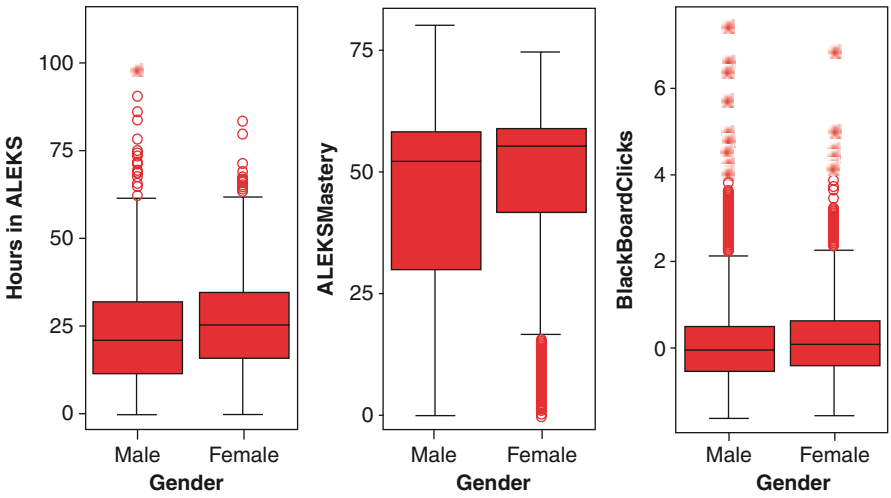

Fig. 3 E-learning time and mastery, by gender

Table 2 Descriptive statistics of student background characteristics

	Mean	Standard deviation	Cronbach alfa
1 ... 5 scale			
Deep learning	3.3	0.564	0.80
Stepwise learning	3.1	0.535	0.74
Concrete learning	3.2	0.645	0.65
Self-regulation	2.8	0.605	0.78
External regulation	3.4	0.477	0.69
Lack of regulation	2.6	0.674	0.72
Construction	3.7	0.465	0.73
Intake	3.7	0.481	0.70
Cooperation	3.5	0.567	0.78
1 ... 7 scale			
Affect	4.5	1.139	0.84
Value	5.0	0.850	0.79
Interest	5.1	1.069	0.84
Cogn. Competence	5.2	0.910	0.79
No difficulty	3.6	0.808	0.70
Effort	6.4	0.725	0.78

measured by activity in BlackBoard that also demonstrates a gender effect, but very minor in size.

Table 2 contains descriptive statistics of all student's background characteristics that are employed in the empirical study. Scales of the ILS instrument are measured along a 5-points Likert scale, with the value 3 as neutral value. On average, students perceive themselves as being both deep, step-wise and concrete learners: all score above neutral. External regulation is by far the most important regulation strategy; self-regulation scores below neutral, as does lack of regulation. Highest scores are for the three different learning conceptions: construction and intake of knowledge have similar levels, that of cooperation being only slightly smaller. The six scales of the subject attitudes instrument are measured along the 7-point Likert scale, with a neutral value of 4. Five out of six scales score above neutral: only the noDifficulty scale has an average below 4, implying that students regard the subject statistics as one being rather difficult. At the same time, students perceive themselves as cognitive competent, and most outspoken, are willing to spend efforts in learning statistics. The last column of Table 2 indicates that reliability indices of all scales are satisfactory.

The full correlation matrix of all student background scales and the several variables describing intensity of tool use and academic performances is provided in the Appendix. In the remainder of this section, the most remarkable patterns visible in the correlation matrix will be discussed.

Figure 4 conveys the most important part of our empirical findings: e-learners stand out in having a strong disposition to stepwise learning, implying that stepwise learners spend a lot more time in the ALEKS learning environment than other type of learners.

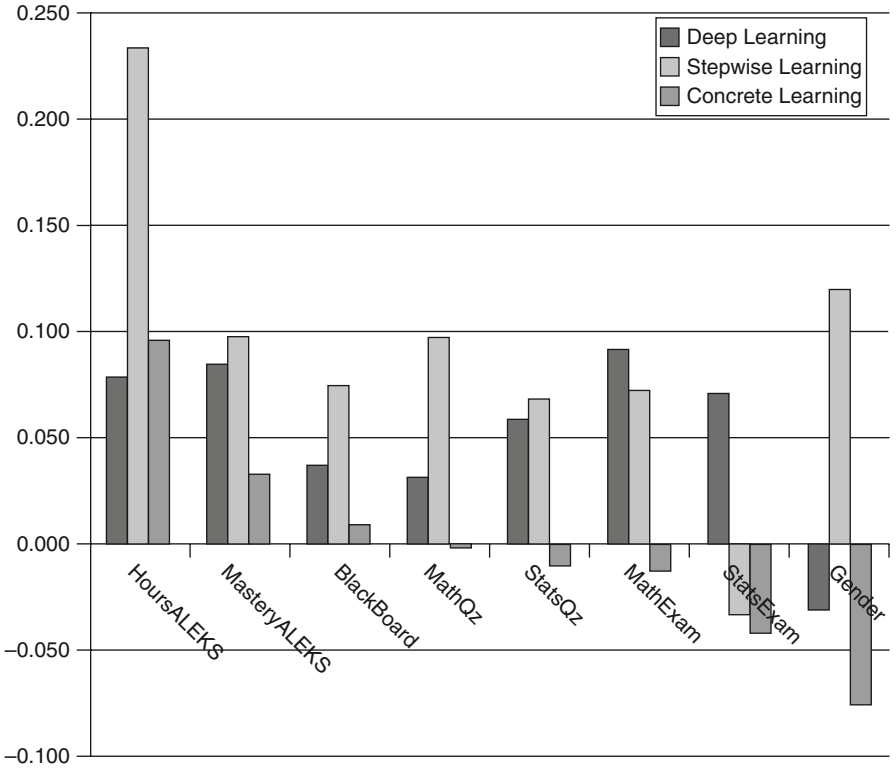

Fig. 4 Correlations of processing strategies

However, the time spent in ALEKS apparently does not appear to be the most efficient form of learning: correlations between stepwise learning and several of the performance variables are much smaller than the correlation with e-learning time, and generally not very different from correlations of performances with deep learning. With regard to the statistics score in the final exam, the correlation with stepwise learning is even negative. Relationships between e-learning preference and processing strategies are somewhat confounded by gender differences, but no more than partly, since correlation patterns are not identical: females score higher on stepwise learning, but lower on deep and concrete learning, in contrast to the pattern visible for intensity of e-learning, where all correlations are positive.

The circumstance that stepwise learners are relatively active in the e-learning environment might suggest that e-learners are more than average externally regulated. That appears to be true, as is clear from the substantial positive correlation with HoursALEKS indicated in Fig. 5.

However, it goes together with a less intuitive relationship: also self-regulation correlates with amount of e-learning. The two types of regulation, however, have quite different relationships with course performances. The positive impact of ex-

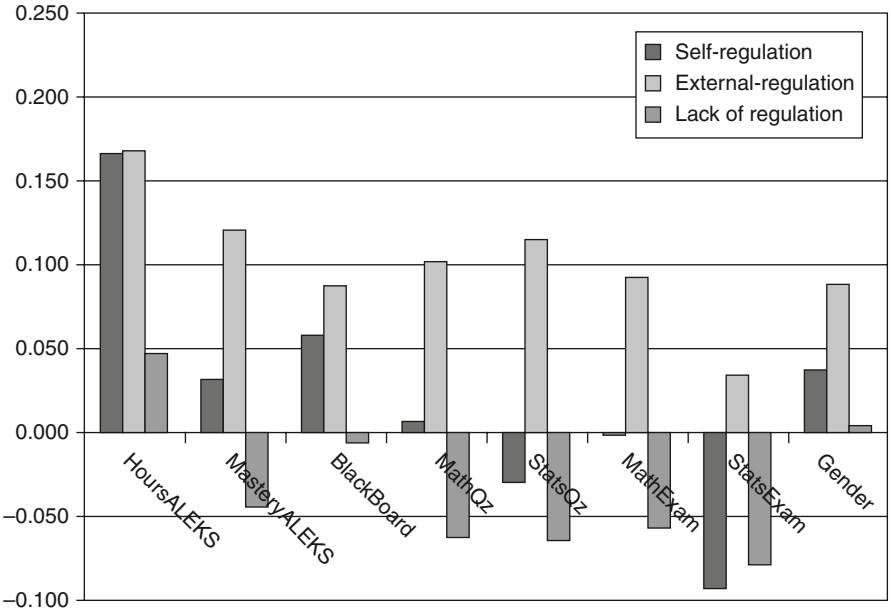

Fig. 5 Correlations of regulation strategies

ternal regulation on intensity of e-learning carries over to all course-performance measures, but that of self-regulation does not. In fact, performances for statistics, both in exam and quizzes, are even negatively related to self-regulation scores.

Learning conceptions or mental models of learning constitute the third dimension for which intensive e-learners distinguish from other learners. Three learning conceptions, to know the disposition to learn by knowledge construction, to learn by knowledge intake and to learn in cooperation with other students, correlate positively and in a substantial way with e-learning time (see Fig. 6).

The positive impact of two of these conceptions carry over to academic performances: learning by construction and intake of knowledge. However, the preference to learn in cooperative settings does not: course performances, especially those in final exams, tend to correlate negatively with this learning conception (the fact that ALEKS hours are positively related to learning in cooperative settings is remarkable in itself, since the e-tool is a purely individual tool, lacking options for group learning). The pattern of correlations for the gender-effect is similar to that of e-learning hours, suggesting that gender differences may play a role in explaining the relationship between e-learning intensity and learning conceptions. The last exhibit, Fig. 7, displays correlations with six achievement motivations. Interest and the willingness to invest a lot of effort in learning statistics share a positive relationship with ALEKS hours. In contrast, lack of Difficulty correlates negatively with e-learning time, which can be understood when we regard the variable as a proxy

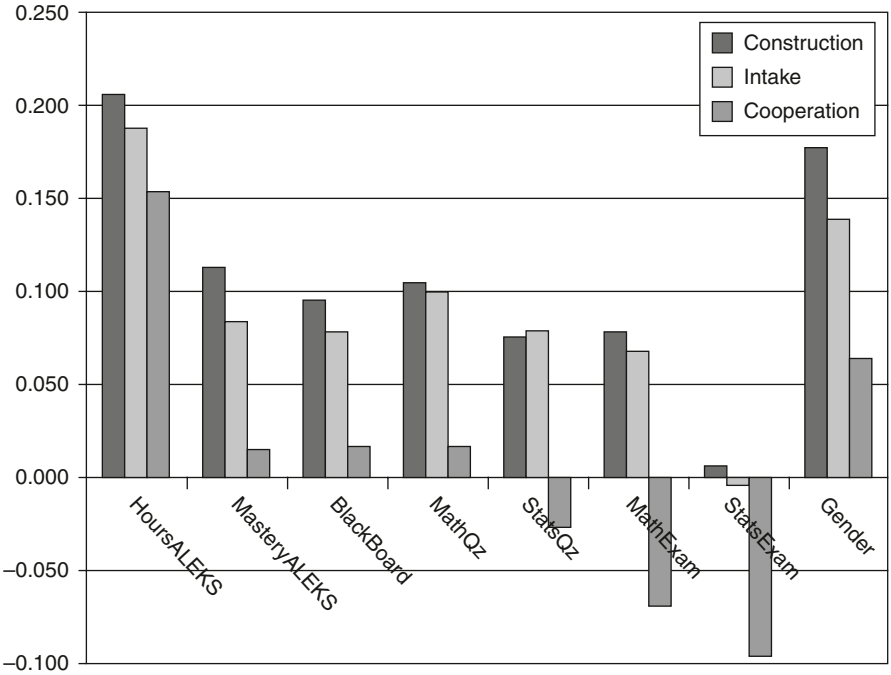

Fig. 6 Correlations of learning conceptions

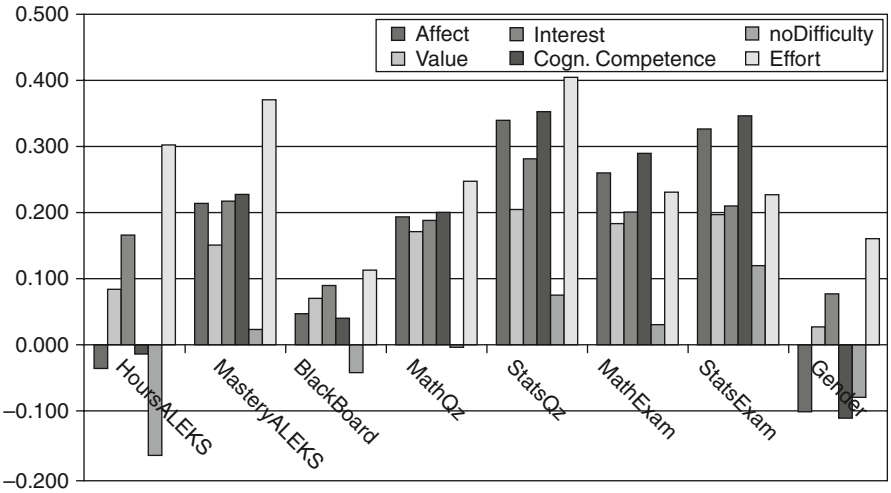

Fig. 7 Correlations of achievement motivations

for prior schooling in statistics. This view is enforced by the fact that the negative correlation does not carry over to the academic performances: apparently, students high on lack of Difficulty have more prior knowledge and do not need to take the e-learning-based practicals that urgent as other students to master the subject. The two remaining achievement motivations, Affect and Cognitive competence, demonstrate no relationship with the amount of e-learning, but do have a strong impact on performances.

That last characteristic is in accordance with the expectancy-value model: both having affect for the subject, and being competent in it, are positive subject attitudes that are important predictors of academic achievement. From that perspective, one might expect that students high on Affect and Cognitive competence not only achieve better, but also work harder, given their positive subject attitudes. But there is a counterbalancing force that also popped up in the lack of Difficulty correlation: students high on Affect and Cognitive competence are probably better schooled and have better prior knowledge. The absence of strong correlations is quite likely the result of these two, opposite directed impacts.

In order to assess the extent to which both intensity of tool use and academic performances are influenced by background characteristics, hierarchical regressions are applied. Table 3 contains the standardized regression coefficients or betas of these regression equations, together with the squared correlation as the standard measure of explained variation (expressed as R^2). All regressions were run with and without a dummy for gender, as to make explicit that adding gender to the regression equation does only add a limited amount of additional explained variation: most is already incorporated in the student background factors. The betas in Table 3 are those of the full equation, so including the dummy. Focussing first on the third column, explaining the number of BlackBoard clicks, it is clear that this variable is unrelated to student background factors, making it a proper benchmark variable. The four academic performance variables in the right columns indicate that a single variable is by far the strongest predictor of all types of achievement: students' self-perceived competency. In the quiz scores, it is in fact the only substantive predictor. In both exam scores, a second predictor variable is Deep Learning: deep learners outperform other types of learners, both stepwise and concrete, in written exams, but not in quizzes. In fact, quiz performance seems to be unrelated with learning conceptions. The first column exhibits an opposite pattern: e-tool use is best predicted by Stepwise Learning, together with low Affect levels, and high Effort levels.

Discussion and Conclusions

Students investigated in this empirical study learn statistics in a blended learning environment that allows them to adapt the use of different learning resources according to personal preferences and dispositions. It appears that differences in

Table 3 Standardized regression coefficients or beta's of hierarchical regressions

	Hours ALEKS	Mastery ALEKS	Black Board	Math Quiz	Stats Quiz	Math Exam	Stats Exam
DeepLearning	−0.06	0.02	−0.01	−0.01	0.08	0.13	0.17
StepwiseLearning	0.12	−0.06	0.00	0.05	0.02	0.01	−0.04
ConcreteLearning	−0.02	−0.08	−0.04	−0.04	−0.07	−0.11	−0.07
Self-Regulation	0.05	0.05	0.05	−0.06	−0.11	−0.09	−0.15
External-Regulation	0.02	0.02	0.06	0.03	0.05	0.04	0.03
Lack of Regulation	0.04	0.05	0.01	0.00	0.02	0.03	0.02
Construction	0.06	0.02	0.05	0.06	0.03	0.06	0.04
Intake	0.05	−0.04	0.03	0.04	0.05	0.05	0.03
Cooperation	0.05	0.05	−0.04	−0.01	−0.05	−0.07	−0.07
Affect	−0.13	0.01	0.05	−0.05	0.04	−0.05	0.06
Value	−0.03	0.00	0.03	0.02	0.06	0.05	0.09
Interest	0.09	0.14	0.02	−0.01	−0.04	−0.03	−0.07
CognCompetence	0.07	−0.08	−0.02	0.25	0.22	0.33	0.22
noDifficulty	−0.08	0.11	−0.03	−0.09	−0.07	−0.11	−0.05
Effort	0.14	0.09	0.06	0.09	0.11	−0.01	0.00
Gender	0.03	0.02	0.01	0.04	0.06	0.06	0.06
R^2 without Gender	14.2%	6.8%	2.8%	7.9%	10.8%	10.9%	10.8%
R^2 with Gender	14.3%	7.6%	2.8%	8.2%	10.8%	11.2%	11.1%

Due to the large sample size, most regression coefficients are statistically significant at the 0.05 level, and therefore, significance levels are not provided. All beta's in absolute value larger than 0.05, are significant at the 0.05 level

learning dispositions and achievement motivations or subject attitudes account for a substantial part of the variation observed in the intensity of using e-learning:

- E-learners, that is, students who use the ALEKS e-tool intensively, relative to all other students, have a somewhat stronger preference for stepwise learning and tend to avoid deep learning. A pattern that contrasts with that of high achieving students, especially with regard to the final exams: those students apply deep-learning strategies and rely less on surface approaches to learning.
- E-learners are characterised by both self-regulation and external regulation; in contrast, high achieving students tend to be less self-regulated.
- E-learners tend to be stronger in construction and intake learning conceptions.
- E-learners distinguish from other students in their suboptimal subject attitudes: they have lower affect for the subject, assign less value to it and regard it as rather difficult.
- Female students are overrepresented amongst e-learners; since female students outperform male students, there is no cognitive explanation for the greater activity of female students.

The picture that emerges of the intensive e-learner is that of a conscientious learner who is (not yet, given the early stage of the academic study) fully academically adapted. Specifically, the e-learner has a disposition for stepwise learning, where most academic programmes, and certainly our programme based on the problem-based learning model, strive to stimulate deep learning. Similarly, academically adapted students are supposed to be primarily responsible for their own regulation of the learning process, whereas intensive e-learners depend strongly on both self and external regulation, such as the stimulus of a digital learning environment. Furthermore, well adapted students possess positive attitudes over the complete spectrum of subject attitudes, whereas e-learners demonstrate a rather mixed profile.

Some of these differences in the profiles between e-learners and fully academically adapted students might be an artefact of a drawback of this study: the fact that the observation of learning intensity is one-sided, in that we were able to measure the intensity of studying in the e-learning tool, but not the intensity of using other components of the blended learning environment (except for BlackBoard activity as a general proxy of learning intensity). Therefore, one cannot totally exclude the possibility that e-learners not only use the e-tool with higher intensity than other students, but do so for some other components of the blended learning environment. The fact that the measure of BlackBoard activity is totally unrelated to student background factors suggests, however, that such a pattern is not very likely. And given the strong correspondence between the principles on which the e-learning tool ALEKS is based, and the type of learning dispositions of these e-learners, it is highly plausible that the e-tool is of greatest support to students that are typically overrepresented amongst the group of students (not yet) fully academically adapted, students with learning dispositions that are generally regarded as being inferior to deep, self-regulated learning. In this respect it is important to realize that the course subject of this study is the first term, first semester course of students

entering a program with both new topics and a new learning paradigm. Learning all these new topics and at the same time adapting to a totally new learning paradigm might be too large a challenge for especially students whose individual learning approaches are at odds with the principles of problem-based learning. The challenge for these students becomes manageable when some temporization in the adaption to independent, self-regulated learning is allowed for. So although accommodation of individual differences should not go at the cost of the ultimate goal of raising students to the desired level of self-regulated deep learners, the availability of a blended learning environment encompassing different components that are able to support different types of learners seems of great value, especially in difficult service courses as statistics.

In his study on the use of computer-based learning environments in conceptually rich domains, Azevedo (2008) concluded that these e-tools require additional staff support for students falling short in self-regulation skills. At first sight, our conclusion seems to be opposite: e-tools such as the one investigated in this study may be especially helpful for less academically adapted students, as, e.g. students with limited self-regulation capacities. However, the position of the e-tool within the blended learning environment in the two studies is radically different. In Azevedo's (2008) study, the e-tool is at the pole of being the most demanding component of the blended learning environment under study, with traditional, class-based education positioned at the other end. In our study, the learning regulation provided by the e-tool goes far beyond the regulation typically provided by our problem-based classes. Both studies together demonstrate that in conceptually rich domains as statistics or mathematics, blended learning environments that are composed of components that differ strongly in their requirements with regard to self-regulation skills are of great help to students finding their way in the transition to university. Future research might help us answering the question if, beyond the need to offer a spectrum of instructional tools that support students of different levels of self-regulation capabilities, anything further can be said about the preferred position of e-tools along that spectrum: at the low end, as in our study, at the high end, as in the Azevedo's (2008) study, or maybe it does not matter, as long as a variety of instructional tools is offered. In order to find an answer to this question, we need, however, to develop reliable measures of students' intensity of usage of all components, when studying in a blended learning environment. The present situation, in which we can fully capture all activities taking place in the e-learning component, but very incomplete monitor the face-to-face component, leaves part of the student learning unrevealed, so disguising the full relationship between learner dispositions and learner activities.

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Appendix

Table 4 Correlations of all variables under study

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Deep learning	1.0																						
2	Stepwise learning	0.41	1.0																					
3	Concrete learning	0.62	0.32	1.0																				
4	Self-regulation	0.58	0.50	0.52	1.0																			
5	External regulation	0.23	0.51	0.19	0.17	1.0																		
6	Lack of regulation	−0.13	−0.02	−0.06	−0.05	0.03	1.0																	
7	Construction	0.39	0.35	0.33	0.45	0.22	−0.12	1.0																
8	Intake	−0.02	0.33	0.02	0.03	0.37	0.16	0.23	1.0															
9	Cooperation	0.12	0.13	0.17	0.15	0.16	0.08	0.32	0.22	1.0														
10	Affect	0.11	−0.01	0.05	0.03	0.02	−0.29	0.00	−0.13	−0.13	1.0													
11	Value	0.22	0.11	0.20	0.13	0.08	−0.17	0.21	0.00	0.03	0.40	1.0												
12	Interest	0.23	0.21	0.21	0.20	0.16	−0.11	0.26	0.08	0.10	0.39	0.55	1.0											
13	Cogn. competence	0.18	0.07	0.10	0.06	0.08	−0.31	0.08	−0.06	−0.11	0.71	0.42	0.32	1.0										
14	No difficulty	0.02	−0.11	−0.03	−0.07	−0.09	−0.16	−0.15	−0.18	−0.18	0.51	0.13	0.05	0.48	1.0									
15	Effort	0.11	0.25	0.11	0.13	0.26	−0.07	0.28	0.17	0.13	0.01	0.21	0.31	0.12	−0.19	1.0								
16	HoursALEKS	0.08	0.23	0.10	0.17	0.17	0.05	0.21	0.19	0.15	−0.12	0.05	0.13	−0.03	−0.18	0.25	1.0							
17	MasteryALEKS	0.08	0.10	0.03	0.03	0.12	−0.04	0.11	0.08	0.02	0.10	0.12	0.11	0.16	−0.02	0.18	0.68	1.0						
18	BlackBoardClicks	0.04	0.07	0.01	0.06	0.09	−0.01	0.10	0.08	0.02	0.05	0.07	0.09	0.04	−0.04	0.11	0.33	0.30	1.0					
19	MathQuiz	0.03	0.10	0.00	0.01	0.10	−0.06	0.11	0.10	0.02	0.09	0.13	0.10	0.19	−0.03	0.17	0.29	0.41	0.27	1.0				
20	StatsQuiz	0.06	0.07	−0.01	−0.03	0.12	−0.07	0.08	0.08	−0.02	0.16	0.16	0.11	0.23	0.03	0.18	0.48	0.71	0.35	0.60	1.0			
21	MathExam	0.09	0.07	−0.01	0.00	0.09	−0.06	0.08	0.07	−0.07	0.13	0.15	0.09	0.25	0.02	0.08	0.17	0.37	0.12	0.47	0.55	1.0		
22	StatsExam	0.07	−0.03	−0.04	−0.09	0.03	−0.08	0.01	0.00	−0.10	0.21	0.15	0.07	0.26	0.11	0.05	0.09	0.38	0.13	0.38	0.59	0.56	1.0	
23	Gender	−0.03	0.12	−0.07	0.04	0.09	0.00	0.18	0.14	0.07	−0.16	−0.05	−0.02	−0.13	−0.10	0.15	0.12	0.11	0.05	0.07	0.07	0.04	0.01	1.0

With the current sample size, correlations with absolute value of 0.03 or larger are statistically significant at 0.05 level (two-tailed), and correlations with absolute value of 0.04 or larger are statistically significant at 0.01 level

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Part IV
Learning in a Changing Workplace

The Effect of the Trainees' Perception of the Training Design on Transfer of Training

The Case of MBA Programs in Vietnam

Nga T. P. Pham, Wim H. Gijselaers and Mien R. Segers

Introduction

Recognizing the strategic importance of training employees in the rapidly changing and expanding business world, most organizations devote a great deal of effort to provide training for their employees (Hughey and Mussnug 1997, pp. 362–363). For example, it is estimated that U.S. organizations spent $134.39 billion on employee learning and development in 2007 (ASTD 2008). Although a large amount of capital is spent on training, evidence shows that only about 10% up to 20% of return on investment is realized in terms of applying what has been learned during the training to the job (Kirwan and Birchall 2006). This evidence has triggered many researchers to look into the transfer process. During the past 20 years, many researchers have tried to contribute to a better understanding of the conditions for trainees to effectively apply the trained knowledge, skills, and attitudes to their work practice, the so-called transfer of training (e.g., Baldwin and Ford 1988; Burke and Hutchins 2007; Cheng and Ho 2001; Ford and Weissbein 1997; Pidd 2004). Generally, three groups of variables influencing training transfer are discerned. These variables represent aspects of the training design, the trainee characteristics, and the work environment (Baldwin and Ford 1988; Cheng and Hampson 2008; Ford and Weissbein 1997; Pugh and Bergin 2006).

Despite a vast amount of studies addressing the impact of these variables on the transfer of training, it has been argued that our understanding of real transfer issues is still incomplete (Burke and Baldwin 1999). The recent review study of Cheng and Hampson (2008, p. 335) states that the "inconsistent and unexpected findings alert us that our previous models may not be adequate for studying the transfer process. Perhaps other schools of thought may provide us with plausible answers." Indeed, most of the transfer of training studies is conducted from a business, organizational psychology or personnel management perspective.

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This might explain why, although training approaches have been changing significantly during the past decades, training design characteristics have received less attention (e.g., Smith-Jentsch et al. 1996). Looking from a learning sciences perspective, it is clear that the training principles that have been applied in former transfer of training research have their origin mainly in behaviorist and cognitivist learning theories, addressing training design characteristics such as *identical elements, over-learning, relapse prevention, and goal-setting* (Machin and Fogarty 2003).

However, during the past ten years, the effectiveness of the design of training programs implementing the aforementioned principles has been under debate. Since the early 1990s, the interest in constructivism as a learning theory has intensified. The core idea of constructivist pedagogy considers learning as meaning making, and the negotiation of meaning. Examples of training designs based on constructivist pedagogy are the use of simulation (Hwang 2003) gaming and multimedia application in programs such as environmental crisis management trainings (Stolket et al. 2001). Given the changed educational approach in training programs, we claim that investigating the influence of training design on the transfer of training needs to take into account a constructivist perspective.

In addition to analyzing the influence of the design of training programs from a different theoretical perspective than before, Cheng and Hampson (2008) indicate that, in order to reach a better understanding of the transfer process, other essential but hidden variables in the transfer process need to be spotted. The training literature confirms that learning in training does not automatically result in transfer (Hesketh and Laidlaw 1997). In other words, transfer of training cannot be successful if trainees have no intention to transfer skills and knowledge in a systematic manner, which has been called (training) transfer strategies. Transfer strategies refer to cognitive and behavioral techniques such as setting goals for skill and knowledge usage, anticipating and monitoring difficulties in using training, identifying and using sources of feedback and support, analyzing situations, and monitoring and assessing opportunities to use trained knowledge on the job (Noe et al. 1990). Despite the (mainly theoretical) arguments for addressing the role of transfer strategies when studying transfer of training, empirical data are very scarce or even non-existent. Therefore, this chapter explores the role of transfer strategy in the relation between training design and training transfer.

In sum, the present study addresses the influence of the training design on the trainee's transfer of training, focusing on the formerly studied training transfer design characteristics as well as the implementation of constructivist instructional principles. In addition to the training design, we study the extent to which the trainee's use of transfer strategies strengthens the relation between the training design and the transfer of training.

The study presented here is conducted in master of business administration (MBA) programs. The MBA setting is optimal for studying transfer of training as the participants of the programs are professionals with a considerable amount of experience and perceive the training as a competence advantage for their professional development (Cheng and Ho 2001). MBA programs are professionally ori-

ented and focus on the development of professional competence by emphasizing the functional perspectives of business (Mintzberg 2004, p. 5). However, research on the transfer of what has been learnt during MBA program to the workplace is still scarce. Researchers have not yet examined the effect of an MBA degree on job performance (Cheng 2000).

Conceptual Framework

Training Design Characteristics: The Traditional Approach

Although many design characteristics have been proposed as influential for the transfer of training, for many of them, empirical evidence is still largely missing. Based on former research (e.g., Machin and Fogarty 2003), the empirical study of Nijman et al. (2006) confirmed the relevance of the following training design characteristics: identical elements, over-learning, relapse prevention, and goal-setting.

The characteristic identical elements refer to the correspondence between a training and an application setting. Various authors (e.g., Baldwin and Ford 1988; Machin and Fogarty 2003) have indicated that the presence of similar stimulus and response elements maximizes positive transfer of training.

Russ-Eft (2002, p. 54) defines *over-learning* as "deliberate training and practice beyond a set criterion performance." It implies trainees are offered continuing practice beyond a first successful attempt of mastering training content (Machin and Fogarty 2003). It is expected that over-learning "will lead to a greater amount of information being learned and retained, next to possibilities to provide further feedback on the correctness of the response" (Nijman et al. 2006, p. 534).

Burke and Baldwin (1999) suggest the necessity of preparing trainees for the possibility of setbacks of their work in applying what has been learnt. They use the concept of *relapse prevention,* "a self-management technique for individuals to become aware of environmental and intrapersonal threats to skill maintenance, in order to anticipate and recover from possible lapses into 'old' behavior and prevent these in the future" (Nijman et al. 2006, p. 534). Research shows relapse prevention to correlate with learning outcomes (Machin and Fogarty 2003), and with the increased use of transfer strategies (Tziner et al. 1991).

Goal setting refers to activities involving determining goals for the use of new knowledge, skills, and attitudes when they return to the workplace (Machin and Fogarty 2003). Goal setting is seen as an important determinant of behavior because goals direct attention and action. It may enhance transfer of training since it helps to improve self-efficacy estimations (e.g., Tziner et al. 1991). Therefore, goal-setting is often taking into account in transfer of training research, although studies differ in the positioning of this variable. Some studies define goal-setting as a trainee characteristic (Tziner et al. 1991; Wexley and Baldwin 1986). Others argue that it is a transfer enhancing training design (Marx 1982; Nijman et al. 2006). This difference in positioning is related to the theoretical perspective on goals-setting the authors take. From a trait-theory perspective, goal-setting is defined as a trainee's individual characteristic, such as intelligence (e.g., Dweck 1986). However, other authors argue goal-setting is influenced by the learning environment the trainee is participating in (Lim and Johnson 2002; Nijman et al. 2006). Therefore, they position goal-setting as a training design characteristic. In this study, we follow the Nijman et al. and Lim and Johnson perspective, identifying goal-setting as a training design characteristic.

Looking at the aforementioned design principles from a learning theory perspective, it shows that the principles have their origin mainly in behaviorist (e.g., the stimulus response idea within the identical elements principle) and cognitivist learning theories. Given the current training practices where to a minor or major extent constructivist pedagogy is implemented, it can be questioned if the aforementioned training design characteristics are sufficient to capture the design of current training programs. Therefore, we argue the necessity of an extension of the traditionally measured design characteristics with characteristics that reflect the constructivist learning environments in current training programs.

Training Design Characteristics: A Constructivist Approach

Vrasidas (2000, p. 6) states that "the basic and most fundamental assumption of constructivism is that knowledge does not exist independent of the learner, knowledge is constructed." The core idea of constructivist pedagogy considers learning as meaning making, and the negotiation of meaning. During the past decade, authors have tried to describe the key features of constructivist learning environments. Pivotal is the work of Jonassen (1994) and Savery and Duffy (1995). Based on their insights, eight instructional principles grounded in constructivist learning theory can be defined:

1. Anchoring of all learning in large tasks or problems, pointing out authentic tasks in a meaningful context rather than abstract instruction out of context
2. Activating the learners, more precisely focusing on context- and content-dependent knowledge construction instead of knowledge reproduction
3. Challenging and supporting the learner's thinking
4. Authentic tasks or problems
5. Reflecting the complexity of the real world by providing multiple representations of reality, avoiding oversimplification
6. The learner's ownership of the problem-tasks
7. The opportunity to reflect on the learning content and the process
8. Supporting collaborative construction of knowledge through social negotiation, not competition among learners for recognition

Beside the theoretical elaborations on the concept of constructivist learning environments, a few researchers have tried to evaluate the extent to which learning environments incorporate constructivist instructional principles. Instruments have been developed that measure trainees' perceptions of the application of constructivist learning principles in the learning environment. The rationale is that not the design of the learning environment but how trainees perceive it influences trainees' learning approaches and learning results (Entwistle and Tait 1990; Nijhuis et al. 2005). Tenenbaum et al. (2001) developed and validated an instrument measuring the presence and/or absence of constructivist practices and principles in teaching and learning. Tenenbaum et al. discerned seven components of constructivist teach-

ing and learning: (1) arguments, discussions, debates among learners, (2) conceptual conflicts and dilemmas, (3) sharing ideas with others, (4) the use of materials and measures targeted toward solutions, (5) enhancing learners' reflections and concept investigation, (6) meeting the learners' learning needs, (7) making meaning by addressing real-life examples during the instructional unit. The Tenenbaum et al. instrument has been used and validated in various studies in higher education (e.g., Gijbels et al. 2006, 2008; Kanuka et al. 2007). In this study, therefore, the Tenenbaum et al. instrument is used.

Use of Transfer Strategies

Foxon (1994, p. 3) has argued that for training transfer to be considered seriously by performance technologists, especially where high level conceptual skills training is involved, strategies for dealing with moderating variables have to be formulated, and "implemented during the design, development and delivery of instruction." Her argument is that it is at this stage that applications of knowledge are individualized, a phenomenon that may not always be obvious. Gist et al. (1990a, b) support Foxon's argument particularly in self management situations where learners have set goals to attain. Foxon believes that such strategies tend to increase the likelihood of transfer through acknowledgment of the impact of organizational system factors that simultaneously assist the individual to focus on potential applications of the knowledge gained from the training. Additionally, she indicated that there has been a growing interest in bridging the gap between the training environment and the workplace of trainees. In this respect, a lot of attention has been paid to the development and use of transfer strategies by trainees. There are several transfer strategies outlined in the literature which can be incorporated into training courses, and, although the evidence is scarce, it highlighted encouraging results. For example, a few studies evidenced that paying attention to goal-setting and self-management as transfer strategies resulted in a significantly higher level of transfer (Tziner et al. 1991). In other words, providing trainees with simple transfer strategies to use in the period after training appears to improve skill maintenance on the job. Foxon also mentioned that several strategies enhance the transfer probability by simultaneously embracing the impact of organizational system factors and assisting the trainees in practically applying the training into their work. The transfer strategies generally address: (1) the trainees' situation (e.g., identifying situations at work to apply the trained skills), (2) the trainees' thoughts/feelings (e.g., thoughts about the necessary support needed in order to use the trained skills, retaining self-confidence when experiencing resistance or burdens), (3) the trainees' behavior (e.g., creating and maintaining a social network), and (4) consequences of the trainees' behavior (e.g., being prepared to deal with skepticism of colleagues when using the trained skills) (Burke and Baldwin 1999).

Despite the plea for further research to understand the use of transfer strategies by trainees (Ford and Weissbein 1997; Machin and Fogarty 2004), a study to expose

the role of the participants' transfer strategies for the transfer of training has not yet been conducted. Therefore, in addition to the direct relationship between training design and transfer of training, we propose that training design will interact with transfer strategy in influencing transfer of training. This study, thus, examines the role of participants' use of transfer strategies as a mediator of the relationship between the training design and the transfer of training.

Transfer of Training Effects

Many practitioners and researchers refer to Kirkpatrick's taxonomy (1998) to evaluate training effects. He discerns four "levels": (1) how trainees felt about the training (i.e., reactions), (2) whether they have learned anything (i.e., learning), (3) whether the learning was transferred to the job or the extent of behavior and capability improvement and implementation/application, and (4) the effects on the business or environment. In this study we focus on the third level. This means we question if the application of the trained knowledge, skills, and attitudes in the workplace improves the performance of the job tasks as well as the work performance in general. In this respect, Xiao (1996) refers to the improvement of the productivity efficiency of the employee through training. However, DeSimone et al. (2002, p. 3) claim that human resource development (HRD) tools such as training programs aim to "provide its members (of the organization) with the opportunities to learn necessary skills to meet current and future job." This implies training programs do not only aim to enhance the quality of current task and work performance, but also support the competence development of trainees in order to meet the demands of the future.

Research Question and Hypotheses

With this study, we aim to understand to what extent the transfer of training is influenced by the training design. We measure training effects on the third level of Kirkpatrick's taxonomy (1998): transfer of training is defined as the improvement of job tasks and work in general as well as competence development. In order to understand training design variables influencing transfer of training, we measure the influence of formerly studied transfer design characteristics and add learning environment characteristics from a constructivist perspective. Moreover, we study the contribution of the trainees' use of transfer strategies. The following research question is addressed: *To what extent does training design, taking into account the role of the participants' transfer strategies, contribute to the transfer of training.*

Two hypotheses were tested. The first hypothesis is: *the training design is positively related to transfer of training (H1).* The second hypothesis is formulated as *the influence of the training design on the transfer of training is mediated by the trainee's use of transfer strategies (H2).*

Method

Participants

The current study took place in a sample of Vietnamese MBA programs (Table 1). The courses are taught in Vietnamese and/or English/French and use different instructional approaches. Data were collected from 172 trainees attending 8 programs. These trainees were attending part-time MBA programs in Vietnam, meaning combining a job with a MBA study. The first survey returned 167 answers. A total of 126 respondents returned the second survey, which means a response rate of 75%. The majority of the sample was male ($n = 102$; 61%).

Measures

For measuring variables, we used and/or extended scales from formerly published questionnaires (Table 2). All measures were assessed using a five-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). In Table 2, the questionnaires used are presented. We indicated the scale names and their items as they resulted from the factor analyses.

Table 1 Descriptions of MBA programs

No	Program	Instructional approach[a]	Language
1	Vietnam–Belgium[b] MBA	Lecture, tutoring	English
2	NEU[c] MBA	Lecture	Vietnamese
3	CFVG[d] MBA	Lecture, consultancy project, simulation, practical cases, problem solving, conferences competing	English/French
4	VNU Ie[e] MBA5	Lecture, team working, seminars, business consulting, group study, guest speakers	Vietnamese
5	VNU Re[f] MBA	Lecture, team working, seminars, business consulting, group study, guest speakers	English
6	FTU[g] MBA	Lecture	Vietnamese
7	MsM[h] MBA	Lecture, teaching assistants, project assignments	English
8	HCMC UT[i] MBA	Lecture	Vietnamese

[a] As described in the information in the program brochures. It can be questioned whether the practice in the classrooms is perfectly matching these information. Therefore we decided not to divide our sample in traditional vs. constructivist approach
[b] Solvay Business School (Univ. Libre de Bruxelles, Belgium)
[c] Hanoi National Economics University
[d] Centre Franco-Vietnamien de Formation a' la Gestion
[e] Vietnam National University International Executive
[f] Vietnam National University Regular Executive
[g] Foreign Trade University
[h] Maastricht School of Management in Vietnam
[i] Ho Chi Minh City University of Technology

Table 2 Questionnaires used in this study

Variables		Scales name	Example
Independent variables	*Training transfer design characteristics* (Nijman et al. 2006)	• Relapse prevention • Goal setting • Identical element • Over learning	• I am prepared for the possibility of setbacks of my work in applying what has been learnt ($n=1$) • I have intended to apply what has been learnt in my work ($n=1$) • I found the contents of the training in agreement with my daily work ($n=1$) • The training had lasted longer than necessary for me to master the subject ($n=1$)
	Constructivist learning (Tenenbaum et al. 2001)	• Personal course benefits • Cognitive conflicts • Interactions and real life events	• The course took into consideration my needs and concerns ($n=15$) • The course caused conflicts for me among various concepts ($n=3$) • The course allowed for arguments, discussion, and debates ($n=11$)
Mediator variable	*Training transfer strategy* (Burke and Baldwin 1999)	Transfer strategy	I identified the appropriate setting for applying what I have learnt ($n=19$)
Dependent variables	*Training transfer effect* (Xiao 1996)	• Perception task performance improvement • Capacity building • Job's performance in general	• I can accomplish my job task better than by using new knowledge, skills, and attitudes (KSA) ($n=6$) • My ability to organize my work in general is increased ($n=6$) • In general, I think this training course has helped me increase my work performance ($n=5$)

In this chapter, we use principal component analysis (PCA) to extract the important information from the data set and to express this information as a set of new independent variables. Especially, PCA is considered as a psychometrical technique with simple mathematics which can avoid the problem of the so called factor indeterminacy associated with factor analysis (Stevens 1996, p. 363).

For measuring the constructivist approach in the training program, we used the Tenenbaum et al. (2001) questionnaire. This questionnaire is validated in a totally different setting—Australia. We do not have sufficient evidence about having the same number of factors underlying the data in Vietnamese setting. Therefore, we conducted a PCA and oblique rotation generating a pattern matrix with factor loadings. The PCA results revealed the following three factors: (1) personal course

benefits: fifteen items loaded on this factor that explained 41.07% of the variance. Internal consistency was Cronbach's alpha (Cα) = 0.93; (2) cognitive conflicts: three items loaded on this factor that explained 7.82% of the variance. Cα = 0.74; and (3) interactions (with the participants and the peers) and real-life events: eleven items loaded on this factor that explained 5.24% of the variance. Cα = 0.74.

The training transfer design characteristics, as identified by Nijman et al. (2006), were measured with the translated Nijman et al. questionnaire. The PCA results showed four items loaded on one factor that explained 52.43% of the variance (these are all positive affect items—relapse prevention, goal setting, and identical element) with Cα = 0.82. Only one item loaded on another factor that explained 20.05% of the variance. This item referred to the characteristic "overlearning" which Vietnamese participants interpreted as a negative point of the course and confused them. This item was therefore deleted from further analysis.

For the transfer strategy scale, we used a translated version of the Burke and Baldwin (1999) questionnaire. As this instrument has been validated in many studies in comparable settings, for this study, we did not conduct a factor analysis on the data. The Cα is very high for our sample (0.88) and therefore confirms prior validation studies.

The transfer effect scale of Xiao (1996) was extended with 11 items in order to measure the dependent variable with a more robust instrument. These items were based on an evaluation questionnaire used in Vietnamese training settings. Thus, doing PCA helps us to make sense of the data, generally thought of as more of a theory-generating procedure (Stevens 1996) and get an empirical summary of the data set (Tabachnick and Fidell 1996, p. 664). The PCA of the extended questionnaire shows three factors on which all items loaded high (minimum = 0.51), except for one of the items of the perception task performance improvement factor, which also loaded onto two other factors, showing the lack of discriminative power. This item was therefore deleted from further analysis. The three factors are (1) perception task performance improvement: five items loaded on this factor that explained 54.13% of the variance, Cα = 0.90; (2) capacity building: six items loaded on this factor that explained 10.08% of the variance, Cα = 0.92; and (3) job's performance in general: five items loaded on this factor that explained 6.01% of the variance, Cα = 0.86.

Based on the factors resulting from the factor analyses, the research model of this study can be depicted as follows (Fig. 1).

Procedure

Questionnaires were translated into Vietnamese language. To check the accuracy of the English–Vietnamese translation, the questionnaires were translated back to English to check whether changes would occur. This was not the case.

The questionnaires were administrated at two points in time: (T1)—at the end of the training program, trainees completed the first survey; and (T2)—three months after the end of the training program, trainees completed the second survey. Literature revealed that transfer of training is changed by time (e.g., Awoniyi et al. 2002).

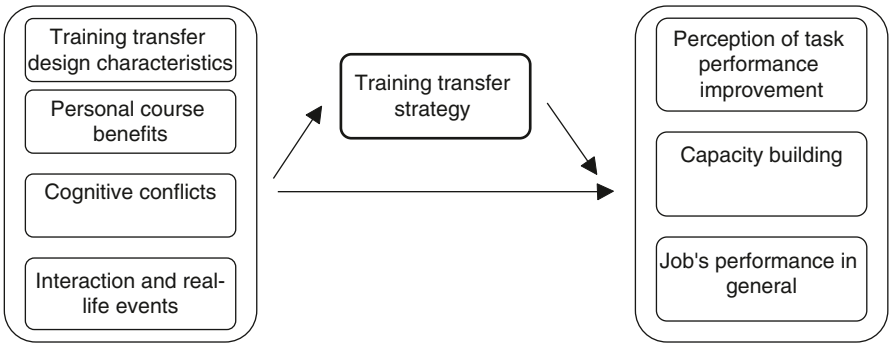

Fig. 1 Research model

Additionally, Alliger et al. (1997, p. 355) noted: "By gathering reaction data 1, 3, or 6 months after training, trainees will have experienced whether the training was in fact useful, and should be in a better position to judge the utility of the training." In this study, we follow the time-series measurement method of Lim and Morris (2006). In order to be able to trace the trainees a period after the training and to avoid a low response rate at T2, we have chosen to contact the participants again after 3 months. At time 1, training design variables and trainee's perception of using training transfer strategies variables were measured. At time 2, trainee's perception of training transfer effects was measured.

Methods of Analysis

The present study uses multiple regression and path analysis to identify effects of potentially important variate relations. The analysis is presented in three parts. According to the theoretical framework, it first tests whether the training design variables influence the transfer of training. Next, it analyzes whether the participants' transfer strategies contribute to the transfer of training. Finally, it analyzes whether the complete proposed model—training design, taking into account the mediating role of the participants' transfer strategies—is validated.

The first two parts of the analysis are primarily based on (multiple) regression analyses. The last part of the analysis will use path analyses to validate the complete proposed framework. The adequacy of the models is assessed by EQS version 6.0 (Bentler 2002).

Results

The descriptive statistics, Pearson correlations and Cα of the variables are presented in Table 3.

Table 3 Descriptives, Cα and Pearson correlations among the measurement variables

Measurement variables	M	SD	1	2	3	4	5	6	7	8
1. Personal course benefits	3.6	0.61	*0.93*							
2. Cognitive conflicts	1.9	0.72	−0.050	*0.74*						
3. Interactions and real-life events	3.6	0.66	0.763**	0.066	*0.91*					
4. Training transfer design characteristics	3.6	0.68	0.729**	−0.104	0.633**	*0.82*				
5. Transfer strategy	3.6	0.47	0.506**	−0.080	0.442**	0.577**	*0.88*			
6. Perception task performance improvement	3.8	0.62	0.462**	−0.032	0.439**	0.465**	0.507**	*0.90*		
7. Capacity building	4.0	0.46	0.324**	0.005	0.290**	0.391**	0.420**	0.597**	*0.92*	
8. Job's performance in general	3.7	0.60	0.577**	−0.002	0.574**	0.599**	0.491**	0.707**	0.647**	*0.86*

Values on the diagonal are Cronbach's Alpha

**$p < 0.01$

Table 3 revealed that most of the training design variables in this study (personal course benefits, interactions and real-life events, and training design characteristics) are positive and significantly associated with the use of transfer strategies and with transfer of training. This is clearly not the case for the variable cognitive conflicts. Moreover, the use of (training) transfer strategies is strongly related to the transfer of training.

Mean scores in Table 3 also showed that the trainees demonstrated high mean scores on most variables with an acceptable standard deviation indicating variability in responses. However, this is not the case for the variable cognitive conflict, which is scored very low. On the opposite, the effect variable capacity building is scored relatively high. This is consistent with the fact that the reason of most of the Vietnamese trainees to study MBA programs is increasing their competencies.

Hypothesis 1: The Training Design Is Positively Related to the Transfer of Training

To test the hypothesis that training design is positively related to the transfer of training, three (stepwise) regression analyses were performed. It was tested if training design significantly predicts the perception of the task performance improvement, the trainees' capacity building and the job's performance in general.

The results are presented in Table 4.

Table 4 shows that training transfer effects in terms of the trainees' perception of task performance improvement, of improved capacity building, and of a better job performance in general is significantly predicted by the trainees' perception of the implementation of transfer design characteristics in the training. Moreover, the perception of task performance improvement and of job performance in general is also significantly predicted by the perception of interactions and (the use of) real-life events during the training, a constructivist instructional principle. This implies the data support the first hypothesis.

Table 4 Regression models of training transfer

	Variable											
	Perception task performance improvement				Capacity building				Job's performance in general			
	β	t	p	Adj.R^2	β	t	p	Adj.R^2	β	t	p	Adj.R^2
1. Training transfer design characteristics	0.31	3.0	0.003	0.21	0.39	4.591	0.0	0.14	0.39	4.304	0.0	0.35
2. Interactions and real-life events	0.24	2.309	.023	0.24					0.32	3.567	0.001	0.42

β = standardized coefficients

Hypothesis 2: The Influence of the Training Design on Training Transfer Effects Is Mediated by the Trainees' Transfer Strategy

The second hypothesis was tested using (enter) regression analysis. To determine whether the transfer strategy is a mediator of the relationship between training design and training transfer, Baron and Kenny (1986) mediation principles have been applied, evidencing mediation when (1) the predictors affect the mediator (block 1 in Table 5), (2) the mediator predicts the criterion variable (block 2), and (3) the beta weight of the predictors decreases when introducing the mediator (block 3). If the predictor variables have non-significant beta weights in the third step, then full mediation is present, otherwise there is partial mediation. We test the effect of training design on training transfer in turn in terms of perception of task performance improvement, capacity building, and job's performance in general. The results of testing hypothesis 2 are presented in Table 5.

The results in Table 5 indicated that the three effect measures are predicted by training transfer strategy. Moreover, the use of training transfer strategies significantly predicts the trainee's perception of task performance improvement, capacity building, and job's performance in general. Finally, for all three effect measures, the perception of the training transfer design characteristics is playing a partial mediating role. This implies data support the second hypothesis.

Table 5 Regression models of training design, training transfer strategy, and training transfer

	Transfer strategy			Training transfer					
	β	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p*
Training design				*Perception task performance improvement*					
• Training transfer design characteristics	0.43	4.512	0.0				0.25	2.032	0.045
Training transfer strategy				0.51	6.356	0.0	0.33	3.640	0.001
Adj.R^2	0.33			0.25			0.30		
Training design				*Capacity building*					
• Training transfer design characteristics	0.43	4.512	0.0				0.33	2.567	0.012
Training transfer strategy				0.42	5.031	0.0	0.29	2.796	0.006
Adj.R^2	0.33			0.17			0.18		
Training design				*Job's performance in general*					
• Training transfer design characteristics	0.43	4.512	0.0				0.34	3.227	0.002
• Interactions and real-life events							0.25	2.225	0.028
Training transfer strategy				0.49	6.120	0.0	0.18	2.046	0.043
Adj.R^2	0.33			0.24			0.25		

Standardized β are reported
$p < 0{,}10$

Testing the Model

Based on the theoretical insights as described above, the originally hypothesized model is composed of paths leading from the three constructs measuring training design (personal course benefits, training transfer design characteristics, and interactions and real-life events) toward transfer strategy, and three paths from transfer strategy toward transfer training. The cognitive conflicts construct is dropped since it is not related to any corresponding construct (Table 3).

Given the exploratory nature of the study, and as recommended by Anderson and Gerbing (1988), our proposed model was compared with several other models presenting plausible alternatives. The final "best fitting" model surpassed all the goodness of fit indices. The goodness of fit indices of the final model as presented in Figure 2 (only significant relations are shown) indicated that the model fits the data very well ($\chi 2 = 15.30$, df = 8, $p = 0.05$, CFI = 0.98, NNFI = 0.96, RMS = 0.25).

The results as shown in Fig. 2 confirm both hypotheses of this study: (1) transfer of training is influenced by training design characteristics, (2) the trainees' use of transfer strategies plays a mediating role. In more detail, Fig. 2 shows that the extent to which a trainee uses training transfer strategies during the training period influences significantly the transfer of training. In addition, personal benefits of the training and the use of interactions and real life events during the training directly affect the transfer of training. Moreover, the results indicate that the relation between personal benefits and transfer of training is stronger when the trainee uses strategies to improve transfer.

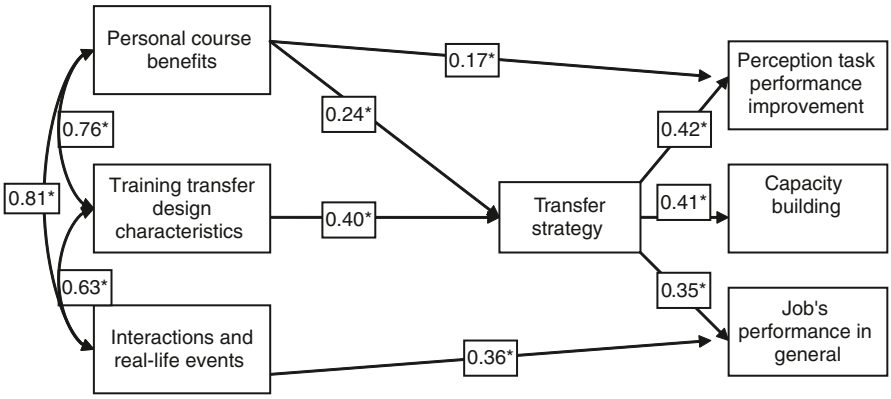

Fig. 2 Model toward training transfer

Conclusion and Discussion

The results of this study confirm prior findings that the training transfer design characteristics are positively related to transfer of training in terms of job task and work performance improvement as well as competence development. Moreover, the importance of two principles based on constructivist pedagogy is evidenced: the extent to which the trainee experiences the training as personal beneficial and the extent to which he perceives that during the course interactions between trainees as well as the use of real life situations have been implemented as instructional principles. Additionally, our results indicate the participants' use of transfer strategies plays a mediating role. This means that the MBA trainees involved in our study will transfer what they have learned to their jobs and therefore improve their performance as well as develop their competencies if (1) they perceive the MBA course is beneficial for them, supports interactions among participants, and makes use of real life events; (2) if it applies principles of relapse prevention, identical elements, goal setting; and (3) when they make use of strategies to transfer the learned knowledge and skills.

These results are of specific relevance within the setting of this study. It is conducted in MBA programs with participants who are experienced professionals aiming to further develop their competencies. Especially in this context, it can be expected that their perception of personal course benefits is a significant predictor of the effect of the program or of the transfer of what have been learnt to their work practice. Additionally, the impact of the use of real life events and the enhancement of interaction among trainees can be expected as relevant in a MBA setting. The explicit link between their daily work and the course content is of specific importance for this sample. Besides, results confirm research on knowledge sharing and creation in professional teams indicating the importance of interaction between team members. During team interaction, team members actively acquire process and share knowledge and information (Argote et al. 2001). Therefore, interactions among professionals (the MBA trainees) are of significant importance for job and task performance as well as capacity building.

However it was surprising that the extent to which the program challenges the participants' thinking (cognitive conflict) seems to play a minor role in Vietnamese MBA programs. It can be questioned to what extent this is due to the way the Vietnamese participants interpreted the items measuring this variable. Probably items such as "the course caused confusion among conceptual ideas" was seen as a negative point of the course, indicating the course content was not clear, even confusing. This interpretation might explain the low mean score on this variable as well as the lack of relation with transfer effects.

To date, although there is a growing market of MBA programs in Vietnam, many of them in cooperation with international partners, there is hardly any evidence of the validity of transfer of training models in a Vietnamese MBA context. With the data set collected from different MBA training courses in North and South Vietnam, there are indications of the cross-cultural validity of training design for enhancing transfer of training, more specifically the transfer design characteristics formerly evidenced as well as constructivist instructional principles.

For the practice of MBA programs and training programs aiming to develop professional competencies of experienced professionals, our results indicate that in order to enhance transfer it is effective to apply constructivist pedagogy as well as transfer design characteristics. Moreover, it seems to be effective to support trainees in the development and use of transfer strategies. Concretely, in designing MBA program, designers and/or trainers should take into account some key implications. Firstly, concentrate on the factors which meet trainees' needs, such as help them to pursue their personal goals, allow them for negotiation of the instructional goals and objectives of the course, motivate them to think reflectively and (further) investigate concepts and ensure that the course resources effectively convey learning information. Secondly, consider the interactions among trainees. For example, allow for arguments, discussions, and debates, provide a variety of learning activities, and create sufficient opportunities to share their own opinions. Finally, focus on preparing plan to apply what has been learnt. In doing this, it helps clarify how they can apply, as well as well prepared for the possibility of setbacks of their work from the application.

A few recommendations for future research can be formulated. Firstly, this study offers evidence for the validity of training design characteristics and the trainees' use of transfer strategies in a Vietnamese MBA context. Future studies in different contexts could strengthen the cross-cultural validity of the findings. This is especially the case for countries with a high economic growth where competence development is one of the key success factors for sustainable development. Secondly, a number of former studies have used self report questionnaires to measure transfer effects, often with very few items. We extended the Xiao (1996) questionnaire in order to make a more robust self-report measure. Although it is often not feasible to contact other raters, for future research, we suggest looking for possibilities to implement ratings from supervisors, peers, and clients (360° assessment) in order to enhance intersubjecting. Finally, as a next step in cross-validating a transfer of training model, in order to deepen our understanding of the transfer process, we recommend the additional use of qualitative research methods such as interviews. The results can highlight why and how specific training design aspects influence transfer.

In conclusion, although transfer of training has been the focus of research for many years, the debate is still very lively, not only because even to date many questions are unanswered but also because the practice of training programs as well as the underlying learning theories have been changed. Our study therefore aimed not only to contribute to a better understanding of the process of transfer of training, but also to take into account the characteristics of current training practices.

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The Use of Personal Development Plans (PDPs) in the Workplace: A Literature Review

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Introduction: A Personal Development Plan (PDP) as a Trojan Horse?

The dynamic nature and the aging population of today's knowledge economy have forced organizations to put the issues of talent management and employability high on the strategic agenda. After all, the talents of employees, and more specifically the competencies they possess, drive the success of the current business (Guthridge et al. 2008). Moreover, employable professionals or employees who possess "the qualities and competencies required to meet the changing needs of employers and customers, and thereby help to realize his or her aspirations and potential in work" (CBI 1999, p. 1), are the organizations' greatest asset. To that end, organizations implement various tools (e.g., annual appraisal interviews, in-company training, 360º-feedback) to support the development of these talents and competencies and to extract the most from their employees. In this respect, organizations to a growing extent make use of a PDP to foster workplace learning.

This literature review aims at providing an overview of the goals PDPs are used for, their effects and the supporting conditions which are desirable in order to optimize the use of the tool. In the following paragraphs, we will first define a PDP. Second, we will discuss the different goals the tool is used for. Third, we will link the PDP with the principles of adult learning. Fourth, we will elaborate on the necessity of support when using a PDP. Finally, the goal and research questions of this literature review will be discussed.

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A PDP: Toward a Definition

In literature the concept PDP is referred to by different synonyms: portfolio, (continuing professional or personal) development plan, logbook or personal professional profile. The two most commonly used terms are personal or professional development plan and portfolio assessment. With respect to the latter, different connotations can be discerned. In many literature sources, portfolio (assessment) refers to a report system that is used for *organizational* accountability and learning (Schmitz and Schillo 2005). Therefore, in order to avoid misunderstandings about the concept, we will use the term personal development plan or PDP.

The PDP idea is complex and has been interpreted in many ways (Wildy and Wallace 1998). The same terms are often used to indicate instruments with different characteristics and ranges of application. In spite of the differences, those instruments have several characteristics in common.[1] Based on the literature a PDP can be defined as an assessment tool, used by employees in organizations, THAT (Brown 1995; McMullan et al. 2003; Redman 1994; Seng and Seng 1996; Smith and Tillema 1998; Snadden et al. 1996):

- Gives an overview of the competencies the employee worked on in the past and which competencies the employee is planning to work on in the future and how
- Should be composed by the employee himself, mostly in consultation with the supervisor
- Can be used as a basis/structure for conversations with the supervisor or coach, who provides the employee with feedback and stimulates the employee's reflection
- Serves as a decision-making tool, from planning an individual training-program to assessing the suitability of a promotion

The above mentioned characteristics of a PDP indicate that when an employee sums up the competencies he[2] has already developed, he becomes aware of the competencies he possesses and which direction he wants to take in his professional career. Furthermore, the employee may see this as an opportunity to develop other competencies he is still lacking to reach a certain goal (e.g., promotion). In that case using a PDP should lead toward undertaking learning activities. As a consequence, it can be expected that the employee's expertise will grow and his performance will improve. The supervisor plays an important role in stimulating the employee's reflection (Boud et al. 1985) (see "Using a PDP Needs Support"). In the box below we present an example of an organization in which the employees are using a PDP as a tool within an assessment cycle.

[1] For clarity reasons, we will use the term "personal development plan" or "PDP" in this chapter, even if the literature source we are referring to uses one of the synonyms we used as search terms in the systematic literature search process (see methodology section).

[2] For clarity reasons, we will use the term "he" when we refer to the employee, while it should be "she or he."

Consider a nonprofit governmental organization in the Netherlands, employing 30,000 workers in 13 different regions. In one of those regions, 1,400 employees are located in 5 different offices in 4 different cities. While the organization is a very large and bureaucratic organization, it is described by employees and management as a warm family business because the majority of employees who start working there enjoy the work and are so dedicated to the organization that they keep working for it for the rest of their lives. Consequently, the average age of the employees is 46.6 years. In 2012 the organization will therefore be faced with a very large stream out. It is for this reason that talent management and continuing professional development of the staff is high on the strategic agenda.

Most employees working in the organization undergo an assessment cycle on an annual basis. The assessment cycle consists of a performance interview, a development interview, and an assessment interview with the supervisor. In this assessment cycle, the supervisor guides the employee in using a PDP. The PDP format asks for the competences the employee needs to develop (looking forward) through evaluating the strengths and weaknesses of the employee (looking back). In the form the following questions are posed: "What are your weaknesses?", "What are your strengths?", "What do you want to accomplish?", "Which competencies do you still need to develop?", "How do you want to develop those competencies and in which timeframe?", and "Which support is needed?" The answers to these questions are used to nourish the interviews with the supervisor, in which the supervisor will try to stimulate the employee's reflection on his or her PDP.

What Is the Purpose of PDP Assessment?

A PDP is a tool used to gather and document information about the competencies the employee worked on and is planning to further develop. In this respect, it can be defined as an assessment tool. Gathering and documenting information by means of a PDP can serve two main purposes. Commonly a distinction has been made between two main purposes: professional development and certification/selection/accountability (Smith and Tillema 2001). When a PDP is used to develop, learning takes a central role. Conversely, when a PDP is used for certification, presenting oneself is most important (Beck et al. 2005; Bradshaw and Hawk 1996; Bunker and Leggett 2004; Lyons and Evans 1997; Orland-Barak 2005; Smith and Tillema 2001). Smith and Tillema (2001) refer to two dimensions. The first continuum goes from the "certification (promotion, selection) purposes" to the "learning, developmental purposes." The second continuum makes a difference between composing a PDP on a voluntary basis and on a mandatory basis. The authors reported that there was more professional development when sustained PDP use was voluntary than when it was mandatory (Smith and Tillema 2001). In contrast, other research

(Bunker and Leggett 2004) showed that staff members did not develop a (teaching) PDP unless they were obliged to (mandatory). In line with the distinction made between the two main purposes, a difference has been made between several types of portfolios. A working portfolio is used for reflection, while a documentary portfolio and a show portfolio are used for summative assessment. The difference between a documentary portfolio and a show portfolio lies in the fact that a show portfolio only displays the best of someone's work (Bunker and Leggett 2004). Another similar difference has been made between a product or showcase portfolio and a process portfolio (Moore and Bond 2002).

PDPs and Principles of Adult Learning

A PDP fits well the assumptions of the theory of adult learning (Knowles 1975). First, the assessment tool assumes that an employee is curious and self-motivated to develop (Joyce 2005). Therefore, it stimulates the employee to take responsibility for his or her own learning (Lyons and Evans 1997). In other words, a PDP supports a self-directed way of learning; the employees should regulate their learning processes themselves. Self-directed learning is: "a process in which individuals take the initiative in evaluating their learning outcomes, diagnosing learning needs, formulating learning goals, and selecting appropriate learning tasks" (Kicken et al. 2008). Second, it allows the employee to use his previous experiences as rich resources for his or her learning. Based on experience the employee has already gathered a lot of (tacit) knowledge of which he is often unaware. By reflection on those experiences, the employee's knowledge can be brought to the surface and developed. Alsop (2002) describes reflections as: "the images of our experiences, revisited for the purpose of learning" (p. 203). Kolb (1984) too stated that learning occurs through "concrete experiences" (e.g., performing a job) and reflecting on what has been experienced, which can be stimulated during a meeting with the supervisor. Third, the PDP allows the employee to develop readiness to learn from life tasks and problems. By undertaking life tasks and problems, the employee is provided with stepping stones to stimulate his learning.

Using a PDP Needs Support

Using a PDP needs to be supported. An employee needs to be supported in a non-controlling way that empowers self-development and should be provided with behavioral choices for learning (London and Smither 1999). In turn, this leads to an increased intrinsic motivation, as the employee experiences a sense of self-competence and feels in control of his own behavior. Feedback seeking and participation in learning activities should be encouraged and rewarded as well (London et al.

1999; London and Smither 1999). Support can be offered by a coach, a mentor, or a supervisor. In organizations the assessment process in which a PDP is used is mostly supported by the supervisor. This is in line with research that found that in using a dossier, training and reflective PDP external feedback was most valued when it was given by a superior (Smith and Tillema 2003). Furthermore, it was found that employees are more likely to engage in developmental activities such as trainings when they have supervisors that are supportive of their efforts (London et al. 1999).

A supervisor should be available in order to have sufficient contact with the employee and provide feedback (Wasylyshyn 2003). The lack of interaction with the supervisor is mostly due to time limitations, incompatible work schedules, and physical distance (Noe 1988). Additionally, it is found that when the supervisor provides his or her employees with a clear goal, a formal framework (including meetings), specific guidelines and standards, the effects of PDP assessment will be larger (e.g., Guaglianone 1995; Noe 1996; Roberts 2003).

Support can also be given by colleagues (peers). Peers often have a better view on the job performance and development of their colleagues than their supervisors (Beck et al. 2005). Furthermore, employees value exchanging ideas, hearing different viewpoints, and exchanging feedback with their colleagues (Tigelaar et al. 2006a).

Finally, a supportive environment contributes to the success or failure of the use of a PDP. The more supportive the environment, the more employees are open to receiving guidance in their professional development (Johnston and Thomas 2005; Joo 2005; London et al. 1999). A supportive environment includes the provision of time and resources. Time is needed to compose a PDP and discuss it with the supervisor during assessment interviews. Resources provided could be print- and web-based resources that help construct a PDP, and provision of training in using the tool (Austin et al. 2005; Bradshaw and Hawk 1996; Daniel and Stallion 1995; Tillema 1998).

The Goal of This Literature Review

The PDP stems originally from portfolios that were used as a showcase by photographers, painters, architects, and brokers for a long time (Lyons and Evans 1997; Mathers et al. 1999). Later, students in secondary schools and higher education began using portfolios to support their learning and facilitate certification. One section was dedicated to the professional development of the students, referred to as the PDP (e.g., Driessen et al. 2007). Recently, PDPs have become increasingly used in organizations as well. Because the PDP holds the promise to be a useful tool in managing the employee's continuing professional development, it can count on a lot of interest (e.g., Firssova 2006). For example, there exists a vast amount of theoretical and practice-based literature on this subject (e.g., Wright et al. 1999) and conferences and international workshops or seminars on portfolio

assessment are popular (e.g., The 5th International ePortfolio Conference 2007, 27–29 September 2007).

Despite the popularity of PDPs in the workplace, relatively little is known about the actual use of the tool and its impact on the employee's learning and development. Empirical evidence on the impact or effectiveness of PDPs is limited (e.g., Austin et al. 2005; Evans et al. 2002; Zeichner and Wray 2001). As a consequence, the implementation of the tool by human resource management (HRM) is accompanied by different assumptions and hypotheses. While the idea behind PDPs is that it should stimulate the employees' learning and professional development, practice shows that the opposite seems to be true in many cases. Employees perceive the tool as ineffective, part of an annual ritual dance, or an alibi serving as cover-up to mask that, when it comes to personal development, organizations do not really care much (Leggett and Bunker 2006; Stone 1998; Challis 2001). By implementing PDPs, a Trojan horse enters the organization. The instrument is brought into the organization with great expectations, but once the instrument is implemented the belly of the Trojan horse opens and what we find is frustration, resistance, window dressing, perceived ineffectiveness and irrelevance, and a perceived waste of time.

In sum, PDP assessment in the workplace has won popularity. Yet, little is known about the common use of the tool. In order to contribute to the optimization of PDP practices and enhance their effectiveness, it is clear that more research is needed. A comprehensive overview of the state-of-the-art research on this issue is a fruitful starting point for developing new lines of research. In this narrative literature review we first question the goals PDPs are used for. Second, we present an overview of the empirical evidence on the effectiveness of the tool to reach these goals. Third, we describe the supporting process conditions that encourage the effectiveness of PDPs.

Method

Our literature search started in 2009. Because of their relevance to the subject under review, the following databases were selected: EBSCO (CINAHL, ERIC, and PsycINFO), Emerald Insight, InformaWorld, OVID (Medline)/Pubmed, Oxford Journals, ScienceDirect (Elsevier), SpringerLink, SwetsWise, Wiley InterScience, and Web of Science. The search terms used are registered in Table 1.

Table 1 Search terms and their combinations

Search terms	Hits
Portfolio (title)	>3000
Portfolio assessment (title)	749
Portfolio (title) and organization	580
Portfolio (title) and workplace	50
Professional development plan (title)	89
PDP (title)	53

To include only articles that have PDP assessment as the main object of study, we searched for the keywords in the "title" only. When we searched for the term portfolio (title), a great amount of the articles that the search query delivered concerned portfolio management (organizational level). To exclude those articles we added the term assessment. The search for portfolio assessment resulted in 749 hits. In addition, most articles were situated within an educational context (students). To exclude those articles, we added the terms organization or workplace. Those searches resulted in 580 and 50 hits. Furthermore, we looked for the two most used synonyms of portfolio assessment, namely PDP and professional development plan, which resulted in 89 and 53 hits. The other synonyms found in literature—"logbook," "personal activity plan," "profile," and "personal diary"—delivered no relevant hits (e.g., Bullock et al. 2007). All articles we included in the literature review discussed tools that had the four characteristics we used to define a PDP in common (see "A PDP: Toward a Definition"). In order to find more articles, we also looked at the reference lists of the articles found. Finally, we looked for other articles written by the same authors—concerning the same topic—and went through our personal library.

The journal articles and presented papers found were retrieved for more detailed evaluation on the basis of the abstracts and put through the test of the inclusion and exclusion criteria until the final studies were identified. The inclusion criteria were: the assessment tool as the object of study, the PDP as studied resembles the four characteristics we used to define the tool (see above), workplace/organization, postgraduate students, and empirical research. Exclusion criteria were: education (school), (undergraduate or graduate) students, descriptive articles, articles published before 1995 (only three empirical articles), articles discussing the validity and reliability of the instrument,[3] articles about portfolio management, and book chapters/book reviews/abstracts/supplements. Following application of the inclusion and exclusion criteria, 57 references were selected for review. Three of them we were unable to retrieve, either via web libraries or personal contact.

First, by making use of a format, the selected references (N studies = 54) were categorized according to the distinction that was made by Smith and Tillema (2001) between the certification (promotion, selection) purpose (N studies = 9) and the learning, developmental purpose (N studies = 31). Fourteen references were related to both categories. Second, a closer analysis of both categories was completed and resulted in nine clusters. The clusters were evaluated for interrater reliability. A second rater randomly selected 10 references, defined the operationalized goal, and divided them into the nine categories, making use of the same format. Focusing on the ultimate goal of the tool discussed, the rater came up with the same categorization.

Finally, we want to remark that the method sections of the qualitative as well as the quantitative researches were often poorly described and limited to frequencies

[3] Twenty-seven references focused on the validity, reliability, and/or assessment criteria of portfolio assessment, which is not the scope of this literature review (e.g., van der Schaaf et al. 2005).

and means. Only three references described effect sizes concerning the effects of PDP assessment (Bullock et al. 2007; Tillema 2001; Hrisos et al. 2008), two references reported effect sizes when comparing different types of portfolios (Beck et al. 2005; Smith and Tillema 2003) and finally three references discussed effect sizes concerning different perceptions of the tool between different groups (Little and Hayes 2003; Smith and Tillema 2001; Sullivan 2004). Therefore, we have chosen to execute a narrative review[4] and not a statistical meta-analysis.

Results

Sample

Concerning the sample of literature, almost all articles used the word "portfolio" (*N* studies = 46), while only a minority of articles used the terms "personal/professional/practice development plan" (*N* studies = 5), "personal education plan" (*N* studies = 2), or "professional growth plan" (*N* studies = 1).

In addition, nearly all studies were conducted in an educational setting (teachers) (*N* studies = 32) or a health setting (*N* studies = 21). Three references were situated within a management context (see Smith and Tillema 1998; Tillema 2001) (Table 2). It is assumed that the concentration of articles on the subject within the

Table 2 Number of references in different contexts

Context[a]	Number of references
Education	*32*
Teachers	22
Administrators (in schools)/educational leaders/principals	10
Health	*21*
Pharmacists	2
General practitioners/surgeons	11
Physicians	1
Dentists	1
Nurses	5
Dietetics	1
Management	*3*
Total	*56*

[a] Note that two articles are situated in two different contexts

[4] A literature review is defined as: "The selection of available documents (both published and unpublished) on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfill certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed" (Hart 1998).

educational field and health context is because the instrument has been used in those contexts for much longer (Mathers et al. 1999). It is only in the last decennium that PDPs have been increasingly used in profit and nonprofit organizations for purposes other than certification or selection as well, which may explain the lack of research in those settings (Smith and Tillema 2001).

The sample consists mostly of qualitative research (*N* studies = 41) or a combination of qualitative and quantitative research methods (*N* studies = 23)[5]. More specifically; interviews (*N* studies = 25), portfolio analysis (*N* studies = 16), and focus groups (*N* studies = 5) were the most used qualitative research methods. Questionnaires (*N* studies = 21) and surveys (*N* studies = 13) were the most used quantitative methods. For a detailed overview, we refer to Table 3 in the Appendix.

Furthermore, the studies were often conducted with a low number of participants. Thirty-seven studies had less than 50 participants, 11 studies had between 50 and 100 participants, and only 14 studies had more than 100 participants. See Table 4 in the Appendix for a detailed overview.

Which Goals Are Strived for?

In order to classify the references, we made use of a format based on the work of Smith and Tillema (2001). We made a distinction between two purposes: certification/selection/accountability and development. Nine references were connected to the first group of goals, while 31 references were classified under the developmental goal. Fourteen references were connected to both categories. That last observation shows that in a relatively large amount of studies no clear distinction is made between certification and development. In other words, formative assessment and summative assessment are often integrated, while it is mentioned that the PDP will have no effect if this distinction is not made (Bunker and Leggett 2004).

Next, the analysis of the selected studies resulted in the following nine clusters of goals (see Table 5 in the Appendix for a detailed overview):

1. Professional development
2. Reflective learning
3. Providing evidence
4. Documenting
5. Certification, selection, and promotion
6. External mobility
7. Coaching
8. Stimulating confidence
9. Organizing

[5] Those studies are integrated more than once in the table.

The most researched goal, *professional development* (*N* studies = 42), also refers to the broader context in which the PDP is used in the workplace. Professional development can be defined as: "A process of lifelong learning for all individuals [and teams] which enables professionals to expand and fulfil their potential" (Evans et al. 2002). Professional development incorporates personal development. "Personal development cannot be separated from professional development; each rests upon the other. Show me how well you share of yourself, understand your own personal processes and are able to communicate this to others, and I'll know how good or bad your nursing care is" (Barber 1992, p. 339; in McMullan et al. 2003).

As the employee needs to learn to develop his professional competences, many authors who mention "professional development" as a goal also discuss the goal *reflective learning* (*N* studies = 21). Learning occurs more easily when reflection is stimulated. Reflection is defined by Daudelin (1996, p. 39) as: "the process of stepping back from an experience to ponder, carefully and persistently, its meaning to the self through the development of inferences; learning is the creation of meaning from past or current events that serves as a guide for future behaviour." In other words, reflection takes place if an employee uses theoretical insights to have a critical view on practice, creates insights into his own strengths and weaknesses, and identifies learning needs.

The third goal, *providing evidence* (*N* studies = 10), refers to the employee who has to *document or demonstrate* his competencies (cluster 4, *N* studies = 5) and is considered accountable for his own learning. The difference between cluster 3 and 4 can be explained by the intention of the employer who can use the instrument to control the formal and informal learning of the employee (cluster 3) or not (cluster 4).

The fifth goal, *certification, selection and promotion* (*N* studies = 5), refers to all kinds of different internal mobility and/or promotion, and incorporates "receiving an award." The goals recertification, licensure, and tenure are included in this cluster as well. In contrast to the fifth cluster, the sixth cluster, *external mobility* (*N* studies = 4), is characterized by an external selection process: the PDP is used to prepare job applications or job interviews.

The seventh cluster, *coaching* (*N* studies = 1), concerns stimulating and optimizing the received coaching the employee enjoys. Making use of a PDP formalizes the coaching the employee receives and subsequently improves the quality of the support. More specifically, making use of a PDP helps the coach to structure the coaching activities and prepare the coaching sessions. The employee's background, educational history, and viewpoints are incorporated in the PDP and provide the coach with additional input for coaching activities (Firssova 2006).

Cluster eight, *stimulating confidence* (*N* studies = 1), refers to using the tool to boost the employee's confidence; by using a PDP, the employee becomes aware of his weaknesses and is able to undertake actions to remedy them. Finally, cluster nine, *organizing* (*N* studies = 1), refers to using the instrument as an agenda, to organize the learning activities an employee has already undertaken and will undertake in the future (Wildy and Wallace 1998).

In addition to the goals that were researched in the different studies, the goal *to motivate* by enhancing the employee's self-responsibility (e.g., Mathers et al. 1999) was also mentioned, but unlike the others the goal was no object of study.

As can be seen in the tables in the Appendix, different goals are mentioned in the same article. The goals *professional development* and *reflective learning* are often mentioned together, as well as *providing evidence; certification, selection and promotion; document or demonstrate* and *external mobility*.

Effectiveness

We researched the literature on the effectiveness of PDPs as instruments to accomplish the goals they are working toward. In this context, effectiveness is defined as the extent to which PDP assessment enhances the fulfillment of the goals aimed for. Only five of the references concluded that the instrument was *not* effective for learning, providing evidence, reflection, or documenting (e.g., Orland-Barak 2005). As shown in Table 6, the effectiveness of PDP assessment was mostly studied with regard to the following goals: personal or continuing professional development (*N* studies = 17), stimulating reflection (*N* studies = 18), and improving the professional practice or the performance (*N* studies = 5). Those clusters of goals are closely related. After all, employees need to learn by reflecting, to develop professionally, and perform better. In addition to the goals for which a PDP is originally implemented (Table 5, the nine clusters), more (unintended) effects are accomplished or described, but not the object of study. These goals are also incorporated in Table 6 (see Appendix).

In the following paragraphs, we will discuss and elaborate on a couple of exemplary studies that studied the effectiveness of PDPs for professional development (*N* studies = 17), reflection (*N* studies = 18), and performance (*N* studies = 5), the three most researched goals of PDPs. The example articles are selected because of their detailed descriptions of the methods and the methods of analysis and/or the combination of different research methods.

Effective for Professional Development. (Continuing) professional development is defined as: "the systematic maintenance, improvement, and broadening of knowledge and skills and the development of personal qualities necessary for the execution of professional and technical duties throughout the practitioner's working life" (Friedman and Philips 2004). Within the context of medicine, it can be defined as "a process of lifelong learning for all individuals and teams which enables professionals to expand and fulfill their potential, and which also meets the needs of patients and delivers the health care priorities of the NHS" (Department of Health 1998, p. 6, in Evans et al. 2002). Evans et al. (2002) researched the use of PDPs to stimulate the continuing professional development of general practitioners (GPs). The main research question in this study was: Are PDPs effective for continuing professional development? Effectivity was operationalized as the perceived changes in practice and development. For this research, questionnaires were administered,

measuring the demography of the GPs who use PDPs, how they identify their learning needs, what methods they use and what support they receive, their views on the use of PDPs, and whether they perceive changes in their own practice and in their personal development. In addition, to explore and understand GPs' reasons for undertaking PDPs, completed PDPs from 68 GPs were analyzed. Furthermore, 19 of them were selected for semi-structured in-depth interviews to explore issues in detail. The study concludes that PDPs are effective in stimulating the continuing professional development and personal development of GPs, on the basis that it leads to changes in patient care.

Effective for Reflection. By analyzing the PDPs of five medical school teachers, Tigelaar et al. (2006b) studied how a PDP stimulated reflection on the various aspects of teaching functioning. Those various aspects were based on Korthagen's model (2004) for teacher reflection in which a distinction is made between mission, identity, beliefs, competencies, behaviors and environment. Tigelaar et al. found that PDP assessment is effective for reflection. However, the research showed that this reflection is often not very profound. Teachers do not reflect easily on their motivation, feelings, thoughts, and their personality. The authors therefore conclude that reflection needs to be stimulated by supportive coaches.

Effective for Performance. Wildy and Wallace (1998) conducted a study that researched whether using a PDP improves the professional knowledge and practice of school leaders ($N=73$). The school leaders' professional knowledge and practice were operationalized as "a means of helping school leaders to understand their own accountability relationships and to account for their practice to peers" (p. 124). In this study, three different methods were combined, namely: PDP-analysis, surveys, and observations. Evidence was found that administrators who use a PDP develop their professional knowledge and connect it with their own practice. It was also found that the school leaders perceive the goal for which PDP assessment is used very differently, ranging from using a PDP to meet the standards to using a PDP to show the acquired competences.

Next to the goals before mentioned, a variety of other goals are studied. For an overview of those goals, we refer to Table 6 in the Appendix.

Supporting Conditions

In Table 7 (in the Appendix) we give an overview of the supporting process conditions studied in the selected empirical studies. Only a limited amount of evidence is available regarding the supporting process conditions. Moreover, although supporting conditions are described in the different studies, they are not the object of study and accordingly, these studies show no empirical evidence of the role of supporting conditions in enhancing the effectiveness of PDPs. For a detailed overview

of the supporting conditions that were described but not object of study, we refer to Table 8 (in the Appendix). We will focus on the supporting conditions that were the object of the research. Below we make a distinction between contextual supporting process conditions (conditions present in the working environment) and individual supporting process conditions (conditions characterizing the employee who is using the tool).

Contextual Supporting Process Conditions. Most references indicated that the formal and fixed structure of the tool in the form of templates needs to be backed up by support. Support can be offered by different persons, namely by a coach, a mentor, or a supervisor. Support can also be given by colleagues (peers). In the conversations with a coach or peer, feedback plays a central role (Tigelaar et al. 2004). Additionally, introductory sessions that focus on the goal, structure, use (also technical), standards, and also offer guidelines can have a positive influence on how the employee makes use of a PDP. It is important to provide the employees with this information in advance. Furthermore, not only the user of a PDP needs to be supported, but the mentor or coach who offers the support needs help in his guiding role as well. To strengthen the PDP process, mentors need to be supported in understanding their role. They have to assist the employee in selecting and developing documentation, in linking the documentation to one or more standards, and in learning from mistakes (Bradshaw and Hawk 1996). Finally, the learning environment that is characteristic for an organization will influence the way the employee perceives PDP assessment and will have an influence on how he uses it.

As mentioned earlier, 11 references researched the vital role of a coach in providing support. Three of these studies have been discussed in a methodologically clear way. Bullock et al. (2007) researched the implementation and impact of PDPs used by dentists. The impact of the PDP was operationalized in terms of the GP's process of development and practice. They conducted an experiment with 78 dentists, divided into an experimental group ($N=42$) which was supported by a tutor in developing a PDP and a control group ($N=45$). The researchers found that dentists who received support from a tutor undertook more courses (23% versus 18%), discussions with colleagues, and trainings (43% versus 32%). Furthermore, the experimental group selected learning activities more in tune with their learning needs (40% versus 32%) and reported a higher impact of the learning activities (21% versus 15%). The research also highlighted that the influence of the coach's support is stronger in case of informal activities than formal activities. This can be explained by the fact that a PDP provides the dentist with a certain focus while he reads and hereby enlarges the educational benefits.

By taking questionnaires analyzing the PDP construction process and taking semi-structured in-depth interviews, Firssova (2006) found that making use of a PDP also enlarges the coaching repertoire and the perceived efficiency and effectiveness of coaching. "The PDP helped to structure the coaching activities, supported preparation of the coach for coaching sessions and served as an additional

feedback channel. The coach got broader access to the general background, educational history and viewpoints of the PDP-maker which provided additional input for coaching activities" (Firssova 2006, p. 11).

Research by Snadden and Thomas (1998) indicated that if confidence is low and the relationship with the trainer is good, the GP is most likely to use the PDP-instrument effectively. The researchers conducted semi-structured interviews to come to that conclusion. In relation to confidence, the authors stated: "Confidence was low on entering practice and was one of the factors that acted in a positive way to encourage the adoption of the PDP…. In addition to this trust, facilitation of the exploration of difficult areas and the generation of a curriculum based on experience between both GP and trainer was required" (Snadden and Thomas 1998, p. 404).

Four references discussed the role of peers as a possible source of support and how they could contribute to the professional practice of their colleagues, for example, because of the possibility to integrate different viewpoints. Moore and Bond (2002) and Tigelaar et al. (2006a) explicitly studied the role of social interactions with peers and found positive results by taking interviews and, in the case of Tigelaar et al., also analyzing PDPs. The latter authors state: "Most of the teachers found the peer meetings valuable because sharing experiences, hearing different viewpoints, thinking along with others and receiving feedback made them take a fresh look at their own teaching and, in some cases, stimulated them to improve practice" (Tigelaar et al. 2006a, p. 375). Often the term "collaboration" is used to point out the interactions with the mentor and/or colleagues, also called peer learning/sharing or collegiality (Seng and Seng 1996).

The feedback that is offered during the meetings with the coach/supervisor or colleagues plays an important role. Four references focused on the feedback that is provided as a result of using a PDP, which was found to be a positive and essential part of the process for growth and professional development (e.g., Smith and Tillema 1998, 2003). Combining PDP analysis, semi-structured questionnaires, and in-depth interviews, Smith and Tillema (2003) found that in using a dossier, training, and reflective PDP, external feedback is valued the most when it is given by a superior.

Furthermore, training lessons (N studies = 1) and providing technical support (N studies = 4) were found to have a positive effect; although in most cases there were not enough resources to provide training on a regular basis (e.g., Dornan et al. 2002).

Also seen as a supporting condition is the assessment structure that is offered by the organization or the supervisor (N studies = 2). It is found that when the employees are provided with a clear goal, a formal framework (including meetings), specific guidelines and standards, the effects of PDP assessment will be larger (e.g., Guaglianone 1995).

Next, three references highlighted that a supportive learning environment is found to be stimulating. Johnston and Thomas (2005) found that principals perceived the PDP as a tool for professional development if it was situated within a

larger supportive social network of professional practice. By contrast, if there was hardly any sense of community, PDP assessment was not stimulating the development of the practice.

Finally, the effectiveness of PDP assessment depends on the available resources (*N* studies = 3), the time provided (*N* studies = 7), and on whether the use is voluntary or mandatory (*N* studies = 1). Research indicates that PDP assessment that is voluntary has more effect on the professional development of the individual (Beck et al. 2005; Smith and Tillema 2001; Swallow et al. 2006). Nevertheless, the question remains: What do you do with less motivated employees? (Swallow et al. 2006). For example, Bunker and Leggett (2004) found that staff did not develop a PDP unless they were obliged to.

Individual Supporting Process Conditions. Next to the above mentioned supporting conditions that are part of the organizational structure, a limited amount of articles (*N* studies = 16) distinguished a group of personal characteristics that influence the effectiveness of the instrument. Austin et al. (2005, p. 181) even describe the PDP as an instrument that requires: "an idealized type of individual who knows how to self-reflect, is open to change, interested in his own development and knows how to organize himself and his environment to support learning (self-directedness, autonomy)." By conducting an action-research in post-graduate nursing practice, Joyce (2005) found that confidentiality in committing experiences to paper is an issue when using a PDP. Dornan et al. (2002) questioned 439 physicians. They found support for reflective learning using an e-PDP. Acceptability and use were influenced by the physicians' individual learning style.

Smith and Tillema (2003) found the perceived feasibility—i.e., whether or not an individual can produce the required information—to be one of the major causes for differences in PDP use. The quantitative and qualitative research they conducted with 89 teachers showed that the PDP type that gave space and opportunity for self-directed learning was regarded as more feasible than the other PDP types. Other researchers indicated that a lack of motivation can cause difficulties in composing a PDP (Bahrami et al. 1995). To study this, they questioned 40 GPs. Lastly, Smith and Tillema (1998) concluded that high quality PDPs can only be expected after sustained use. They executed a study with principals (*N* studies = 35) and a study with managers (*N* studies = 14) by taking questionnaires and interviews. The studies focused on the use of a PDP as a tool for providing functional feedback.

Furthermore, the importance of possessing writing skills (Cayne 1995), being flexible (e.g., Evans et al. 2002), believing in the process (e.g., Pearson and Heywood 2004), and having confidence/trust in the environment (e.g., Pitts et al. 1999) are *believed* to be valuable characteristics of the individual. Also, when the PDP assessment is in line with the employee's learning needs and when there is a clear connection with the day-to-day practice, the perceived benefit will lead toward an increased enthusiasm and personal satisfaction, which will in turn stimulate personal development (Austin et al. 2005; Bahrami et al. 1995; Bullock et al. 2007).

Summary: Integrated Table—Goals, Effects, and Supporting Process Conditions

Goal	Number of references	Effectiveness	Number of references	Supporting process conditions		Number of references
Personal/(continuing) professional development	42	Personal/(continuing) professional development	17	Support	From coach (modeling/mentorship/supervision)	11
Stimulate reflection/(reflective) learning	21	Stimulating (self-)reflection (reflective learning)	18		From colleagues(peers)/collaboration	4
Provide evidence/control/accountability	5	Improving the professional practice/performance	5		Feedback	4
Demonstrating/documenting/recording	5	Demonstrating/documenting/recording	4		Training lessons for employees	1
(Re)certification/licensure/tenure/promotion/selection/award	5	Stimulating confidence (and self-awareness) of the employee	3		Clear goals, structure/framework (also meetings), guidelines, standards (formalized)	2
Prepare job interview/job application/(external) selection	4	Undertaking more educational/learning activities	2		Learning environment (organizational culture/climate, community of practice)	2
Receive/optimize coaching	1	Preparing job interviews/job applications	2		Local networks	1
Stimulate confidence	1	Optimizing coaching (by mentor/principal)	3		Teaching in courses	1
To organize oneself	1	Providing constructive feedback	2		Technical/administrative support	4
		Diagnosing	1			

Goal	Number of references	Effectiveness	Number of references	Supporting process conditions		Number of references
		(Re)certification	1	Individual characteristics	Confidence/trust	4
		Facilitating accountability	1		Learning style	1
		Facilitating the employee's autonomy	2		Feasibility ("do-able")	2
		Self-assessment	1		Motivation	2
		Organizing	1		Sustained use	2
					Perceived importance	2
					Age	1
					Reflection	1
					Self-efficacy	1
				Mandatory/voluntary		1
				Time		7
				Resources		3

Conclusion and Discussion

Nowadays employability and talent management of workers is taking a central role in organizations, as companies come to realize that the talent and competencies of the employees drive their business success (Guthridge et al. 2008). To develop those talents and competencies, organizations to a growing extent make use of PDPs as an assessment tool, providing and documenting information on the competencies the employee worked on and is planning to further develop. The purpose of this chapter was to explore the literature on the goals PDPs are being used for in the workplace (research question one), on their effectiveness (research question two), and on the conditions which can support their effectiveness (research question three). To this end, we conducted a literature review to examine the three research questions. To our knowledge, this is the first systematic review of the empirical literature on PDP assessment in the workplace. As most literature on the topic is descriptive, only 54 relevant empirical studies were included. Furthermore, most studies lacked a detailed description of the research method or data analysis.

Concerning the first research question: For which goals is PDP assessment used? We stated that in general a distinction is made between professional development and certification/selection/accountability (Smith and Tillema 2001). Based on literature in this study, nine clusters of goals were identified, namely: (1) professional development; (2) reflective learning; (3) providing evidence; (4) documenting; (5) certification, selection, and promotion; (6) external mobility; (7) coaching; (8) stimulating confidence; and (9) organizing.

In addition, some authors categorize the aforementioned goals of PDPs according to the purpose of assessment. A distinction is made between the formative and summative purposes of PDP assessment. While some authors argue that formative and summative assessment should not be combined and conducted by the same supervisor (e.g., Wolf and Dietz 1998), other authors believe that information gathered during the learning or development process can be very useful for summative evaluation (e.g., Snyder et al. 1998).

Answering the second research question, the effectiveness of PDP assessment, the results of the empirical studies are inconclusive. Some studies indicate that PDP assessment is effective for personal or continuing professional development, stimulating reflection and improving professional practice. However, not all studies support these positive findings. For example, Bunker and Leggett (2005) found that (teaching) PDPs can be effective tools for stimulating promotion, but they are not useful for encouraging reflective practice. These inconclusive results indicate that the effectiveness of PDP assessment is depending on certain supporting process conditions. This brings us to the third research question: Which supporting process conditions enhance the effectiveness of PDP assessment? The literature indicated that the use of PDPs needs to be backed up by sufficient support. Support can be offered by different key players, such as a coach, a mentor, a supervisor, or a colleague. During conversations with a coach or a colleague, the feedback given plays a crucial role. Additionally, introductory sessions that focus on the goal, structure,

use (also technical) and assessment criteria have a positive influence on how the employee makes use of a PDP. It is important to provide the employees with this information in advance. However, the tool should not be too highly organized either because that would prevent the employee from taking the responsibility and personalizing the PDP (Tigelaar et al. 2004). Not only the user of a PDP needs support; the mentor or coach who offers the support needs help in his guiding role as well (e.g., Snyder et al. 1998). To strengthen the PDP process, mentors need to be supported in understanding their role. They must assist in selecting and developing documentation, in linking the documentation to one or more standards, and in learning from mistakes. Finally, the learning environment that is characteristic for an organization will influence the way the employee perceives PDP assessment and will have an influence on how they use it.

Next to contextual supporting process conditions, several individual supporting process conditions are mentioned in the literature. The idealized type of user is an employee who is motivated and dedicated to his own development, knows how to self-reflect, shows self-directedness, and has confidence in his supervisor and the assessment process. However, organizations and supervisors often do not provide the employee with sufficient time to reflect and work on his development plan (Alsop 2002).

In conclusion, implementing PDP assessment in the organization should not be seen as bringing in a Trojan horse, a tool that is brought in with high expectations, but appears to contain unpleasant surprises only. If supporting process conditions are present, such as the support from a coach, the effectiveness of the PDP as an assessment tool to support development is enhanced.

Nevertheless, there exists a gap when it comes to empirical research on the effectiveness of PDP use in the workplace and the conditions that can support this use, especially in organizational contexts other than educational and health settings. For example, the received support from a coach was the only supporting process condition that was an object of study in more than four studies. The lack of empirical research on this topic may be explained by the fact that PDP assessment has only been implemented in organizations in the course of the last decennium. This is especially the case if the instrument is used for other purposes than evaluation purposes. The small amount of empirical research that is available is mostly qualitative research, with small sample sizes.

This literature review encountered a few limitations that need to be brought into account. First, the search showed that empirical evidence of the effectiveness of PDPs, to reach the goals aimed, as well as of the necessary supporting conditions is still scarce. We were able to select 57 references of which three could not be found. Moreover, the methodology is often poorly described in the studies and, if the studies are quantitative, the presented results are mainly limited to frequencies and means. Statistical meta-analysis evidencing effects sizes, therefore, could not yet be performed.

Second, the concept of PDP has many connotations in literature as well as practice. Although in order to enhance comparability of the literature reviewed, only articles where the description of the PDP matches the characteristics we have defined

were included, there are still variations in the implementation of this tool. Given the limited amount of studies, those differences were not taken into account and further analyses to improve differences between organizational implementation and practice were not possible.

This study clearly shows that empirical research on this topic is scarce. Therefore, future empirical research should focus on the central question reviewed in this study: Is PDP assessment effective and if so, for which goals and under which conditions? First, there has been no systematic empirical research on the goals PDP assessment is used for. It is not clear for which various goals PDP assessment is used in practice. Next, it can be questioned if the PDP is suitable for all kinds of goals and in which way the tool should be used differently according to the goal it is used for. For example, the role and the task of the supervisor will be different when a PDP is used for a summative purpose (e.g., promotion) than when a PDP is used to accomplish a formative purpose (e.g., professional development). It was also found that the PDP is effective for reflective learning.

Second, there is a need for more empirical research on the effectiveness of PDP assessment in organizational settings, other than educational and health contexts. More concretely, from a methodological point of view, studies with research designs that allow the measurement of effects such as pre-test post-test control group designs need to be conducted. However, identifying organizations that consist of a group of users and nonusers of PDPs is not always possible and assessment processes in which the tool takes a central role may vary a lot between different organizations, which puts the external validity under pressure. In addition, to be able to measure the effects of the PDP practice, there is a need for validated instruments. Future research should research the components that are part of the PDP practice (e.g., the format, the assessment process, the supervisor, and the delivered feedback) and focus on developing and validating instruments that measure the PDP practice and use. This includes the challenge to get a grip on the different components that are part of the PDP practice. Furthermore, the issue of measuring the effectiveness of a tool like a PDP includes the challenge of operationalizing the construct of effectiveness. Many discussions have been held about how to define effects of professional development interventions. Often is referred to the four-level model of Kirkpatrick in which a distinction is made between four levels of evaluation: reactions, learning, behavior, and results (Aguinis and Kraiger 2009). The effectiveness of a PDP, defined as a learning and development tool, can be measured on the same four levels. Is it possible to measure the effects of a PDP in terms of the employees' satisfaction (level 1: reaction); the effects on learning activities undertaken by the employee (level 2: learning), expertise growth (level 3: behavior), and performance of the employee (level 4)? Finally, since a PDP is mostly used in order to stimulate learning and development over a longer period of time, longitudinal research could specify the long-term effects of the assessment tool. It may be possible that PDPs are only effective if they are used in a sustainable way.

Third, to provide organizations with guidelines about how to organize the PDP assessment process and consequently make PDP assessment more effective, more

research on the contextual and individual supporting process conditions of effective PDP assessment in organizational contexts is needed. While the PDP is claimed to be a tool to enhance learning, it often seems to have the opposite effect. Consequently, questions arise concerning the factors that influence the use of a PDP in a positive and/or a negative way, leading to reflective learning and continuing professional development. This leads to a number of specific questions concerning the contextual supporting process conditions discussed in this literature review that future research could address, such as: How does the PDP assessment process need to be supported? What does a supervisor need to do? How many formal meetings should take place to discuss the PDP? How does the supervisor need to give feedback on the PDP? How can the supervisor motivate the employee to make use of a PDP?

With respect to the individual supporting process conditions, relevant questions for future research are: Is PDP assessment applicable to every type of employee? Is it applicable to knowledge workers and nonknowledge workers, in profit and nonprofit organizations? What skills does an employee need to possess to be able to use a PDP in an effective way? Can an employee be trained in using a PDP?

In conclusion, the results of our study provide more insight into the use of PDP assessment in the workplace. However, more studies systematically investigating the effects of PDPs and the supporting process conditions are necessary.

Appendix

Table 3 Number of references according to the research method

		Number of references
Research		
1. Quantitative research		*35 unique hits*
• Survey/ questionnaire	Austin et al. 2005; Dixon et al. 2005; Grandgenette 1999; Guaglianone 1995; Guaglianone and Yerkes 1998; Hrisos et al. 2008; Johnston and Thomas 2005; Jun et al. 2007; Seng and Seng 1996; Tisani 2008; Tucker et al. 2003; Webb et al. 2006; Wildy and Wallace 1998	13
• Questionnaire	Bahrami et al. 1995; Beck et al. 2005; Bunker and Leggett 2004; Cayne 1995; Dornan et al. 2002; Evans et al. 2002; Firssova 2006; Joyce 2005; Kjaer et al. 2006; Lammintakanen et al. 2002; Little and Hayes 2003; Marcoux et al. 2003; Mathers et al. 1999; Pearson and Heywood 2004; Smith and Tillema 1998, 2001, 2003; Spence and El-Ansari 2004; Sullivan 2004; Tillema 2001, 1998	21
Experiment	Ekbatani and Pierson 1997	1

Table 3 (continued)

		Number of references
2. Qualitative research		*41 unique hits*
• Interviews	Bradshaw and Hawk 1996; Brown and Irby 1998; Bullock et al. 2007; Cayne 1995; Daniel and Stallion 1995; Dixon et al. 2005; Evans et al. 2002; Fenwick 2003; Firssova 2006; Hrisos et al. 2008; Johnston and Thomas 2005; Lyons 1998; Marcoux et al. 2003; Mathers et al. 1999; Pearson and Heywood 2004; Pitts et al. 1999; Smith and Tillema 1998, 2001, 2003; Snadden and Thomas 1998; Snadden et al. 1996; Sullivan 2004; Swallow et al. 2006; Tigelaar et al. 2006a; Tisani 2008	25
• Focus groups	Bunker and Leggett 2004; Johnston and Thomas 2005; Joyce 2005; Marcoux et al. 2003; Tucker et al. 2003	5
• Participant observation	Mathers et al. 1999; Stewart 2004; Wildy and Wallace 1998	3
• Portfolio analysis	Bullock et al. 2007; Dixon et al. 2005; Evans et al. 2002; Firssova 2006; Irby and Brown 1999; Johnston and Thomas 2005; Mathers et al. 1999; Moore and Bond 2002; O'Connor and Herrelko 2000; Orland-Barak 2005; Pinder and Turnbull 2003; Riggs et al. 1997; Smith and Tillema 1998; Sullivan 2004; Tigelaar et al. 2006b; Wildy and Wallace 1998	16
• Anecdotal feedback	Austin et al. 2005; Dornan et al. 2002	2
• (Semi-structured) discussion sessions/ workshops	Austin et al. 2005; Bunker and Leggett 2004; Cayne 1995	3
• Case analysis	Beck et al. 2005; Lyons and Evans 1997	2
• Field notes	Cayne 1995	1
• Meetings	Dixon et al. 2005	1

Table 4 Studies sorted according to the number of participants

Number of participants	Number of references
0<N>50	*37*
N<10	7
10<*N*>20	11
20<*N*>30	7
30<*N*>40	9
40<*N*>50	3
50<N>100	*11*
N>100	*14*
100<*N*>200	6
200<*N*>500	5
N>500	3

Table 5 PDP assessment in the workplace: which goals are being strived for?

Goal[a]	References
Personal/(continuing) professional development (42)	Austin et al. 2005; Bahrami et al. 1995; Beck et al. 2005; Bullock et al. 2007; Cayne 1995; Daniel and Stallion 1995; Dixon et al. 2005; Dornan et al. 2002; Ekbatani and Pierson 1997; Evans et al. 2002; Fenwick 2003; Firssova 2006; Grandgenette 1999; Hrisos et al. 2008; Irby and Brown 1999; Johnston and Thomas 2005; Joyce 2005; Jun et al. 2007; Lammintakanen et al. 2002; Little and Hayes 2003; Lyons and Evans 1997; Marcoux et al. 2003; Mathers et al. 1999; Moore and Bond 2002; O'Connor and Herrelko 2000; Pinder and Turnbull 2003; Pitts et al. 1999; Riggs et al. 1997; Seng and Seng 1996; Smith and Tillema 1998, 2001, 2003; Snadden et al. 1996; Spence and El-Ansari 2004; Stewart 2004; Swallow et al. 2006; Tigelaar et al. 2006a, b; Tillema 2001; Tisani 2008; Tucker et al. 2003; Wildy and Wallace 1998
Stimulate reflection/(reflective) learning (21)	Bunker and Leggett 2004; Dixon et al. 2005; Dornan et al. 2002; Ekbatani and Pierson 1997; Guaglianone and Yerkes 1998; Kjaer et al. 2006; Lyons 1998; Lyons and Evans 1997; Marcoux et al. 2003; Mathers et al. 1999; Orland-Barak 2005; Pearson and Heywood 2004; Riggs et al. 1997; Seng and Seng 1996; Smith and Tillema 1998, 2003; Snadden and Thomas 1998; Spence and El-Ansari 2004; Swallow et al. 2006; Tigelaar et al. 2006a; Webb et al. 2006
Provide evidence/control/accountability (5)	Dixon et al. 2005; Johnston and Thomas 2005; Orland-Barak 2005; Tucker et al. 2003; Wildy and Wallace 1998
Demonstrating/documenting/recording (5)	Bunker and Leggett 2004; Dixon et al. 2005; Jun et al. 2007; Lyons and Evans 1997; Tucker et al. 2003
(Re)certification/licensure/tenure/promotion/selection/award (5)	Bradshaw and Hawk 1996; Bunker and Leggett 2004; Grandgenette 1999; Smith and Tillema 2001, 2003
Prepare job interview/job application/(external) selection or mobility (4)	Guaglianone 1995; Brown and Irby 1998; Bunker and Leggett 2004; Sullivan 2004
Receive/optimize coaching (1)	Firssova 2006
Stimulate confidence (1)	Jun et al. 2007
To organize oneself (1)	Wildy and Wallace 1998

[a] Some studies are classified under more than one goal

Table 6 Which goals is PDP assessment effective for?

Effective for…	References
Personal/(continuing) professional development (17)	Beck et al. 2005; Bullock et al. 2007; Cayne 1995; Evans et al. 2002; Fenwick 2003; Grandgenette 1999; Guaglianone and Yerkes 1998; Jun et al. 2007; Lyons and Evans 1997; Marcoux et al. 2003; Pitts et al. 1999; Riggs et al. 1997; Seng and Seng 1996; Stewart 2004; Swallow et al. 2006; Webb et al. 2006; Wildy and Wallace 1998
Stimulating (self-) reflection (reflective learning) (18)	Bradshaw and Hawk 1996; Cayne 1995; Dornan et al. 2002; Fenwick 2003; Joyce 2005; Kjaer et al. 2006; Lyons 1998; Lyons and Evans 1997; Marcoux et al. 2003; Mathers et al. 1999; Pearson and Heywood 2004; Pinder and Turnbull 2003; Riggs et al. 1997; Seng and Seng 1996; Snadden et al. 1996; Spence and El-Ansari 2004; Tigelaar et al. 2006a; Tillema 2001
Improving the professional practice/performance (5)	Bahrami et al. 1995; Evans et al. 2002; Joyce 2005; Marcoux et al. 2003; Wildy and Wallace 1998
Demonstrating/documenting/recording (4)	Jun et al. 2007; Lammintakanen et al. 2002; Pinder and Turnbull 2003; Tucker et al. 2003
Stimulating confidence (and self-awareness) of the employee (3)	Evans et al. 2002; Guaglianone and Yerkes 1998; Snadden and Thomas 1998
Undertaking more educational/learning activities (2)	Bahrami et al. 1995; Bullock et al. 2007
Preparing job interviews/job applications (2)	Guaglianone 1995; Sullivan 2004
Optimizing coaching (by mentor/principal) (3)	Bradshaw and Hawk 1996; Firssova 2006; Kjaer et al. 2006
Providing constructive feedback (2)	Ekbatani and Pierson 1997; Smith and Tillema 1998
Diagnosing (1)	Ekbatani and Pierson 1997
(Re)certification (1)	Grandgenette 1999
Facilitating accountability (1)	Joyce 2005
Facilitating the employee's autonomy (2)	Joyce 2005; Kjaer et al. 2006
Self-assessment (1)	Smith and Tillema 2001
Organizing (1)	Kjaer et al. 2006

Table 7 Supporting process conditions: object of study

Supporting process conditions	References
Support	
From coach (modeling/mentorship/supervision) (11)	Bullock et al. 2007; Daniel and Stallion 1995; Evans et al. 2002; Fenwick 2003; Firssova 2006; Kjaer et al. 2006; Pearson and Heywood 2004; Riggs et al. 1997; Snadden et al. 1996; Tigelaar et al. 2006a; Tisani 2008
From colleagues (peers)/collaboration (4)	Beck et al. 2005; Moore and Bond 2002; Seng and Seng 1996; Tigelaar et al. 2006a
Feedback (4)	Ekbatani and Pierson 1997; Hrisos et al. 2008; Smith and Tillema 1998; Webb et al. 2006
Training lessons for employees (1)	Dornan et al. 2002
Clear goal, structure/framework (also meetings), guidelines, standards (formalized) (2)	Guaglianone 1995; Kjaer et al. 2006
Learning environment (organizational culture/climate, community of practice) (2)	Johnston and Thomas 2005; Daniel and Stallion 1995
Local networks (1)	Bahrami et al. 1995
Teaching in courses (1)	Dornan et al. 2002
Technical/administrative support (4)	Kjaer et al. 2006; Moore and Bond 2002; Tisani 2008; Wildy and Wallace 1998
Individual characteristics	
Confidence/trust (4)	Fenwick 2003; Joyce 2005; Snadden and Thomas 1998; Tisani 2008
Learning style (1)	Dornan et al. 2002
Feasibility ("do-able") (2)	Hrisos et al. 2008; Smith and Tillema 2003
Motivation (2)	Bahrami et al. 1995; Kjaer et al. 2006
Sustained use (2)	Hrisos et al. 2008; Smith and Tillema 1998
Perceived importance (2)	Tisani 2008; Webb et al. 2006
Age (1)	Webb et al. 2006
Reflection (1)	Tisani 2008
Self-efficacy (1)	Tisani 2008
Mandatory/voluntary (1)	Beck et al. 2005
Time (7)	Bahrami et al. 1995; Daniel and Stallion 1995; Hrisos et al. 2008; Kjaer et al. 2006; Pitts et al. 1999; Seng and Seng 1996; Tisani 2008
Resources (3)	Bahrami et al. 1995; Dornan et al. 2002; Pitts et al. 1999

Table 8 Supporting process conditions mentioned in literature

Supporting process conditions	References
Support	
In general (facilitation) (11)	Austin et al. 2005; Beck et al. 2005; Bradshaw and Hawk 1996; Bunker and Leggett 2004; Cayne 1995; Daniel and Stallion 1995; Dornan et al. 2002; Mathers et al. 1999; Moore and Bond 2002; Pinder and Turnbull 2003; Pitts et al. 1999
From coach (modeling/mentorship/supervision) (10)	Bahrami et al. 1995; Bradshaw and Hawk 1996; Joyce 2005; Little and Hayes 2003; Lyons 1998; Marcoux et al. 2003; Moore and Bond 2002; Snadden and Thomas 1998; Swallow et al. 2006; Tigelaar et al. 2006b
From colleagues (peers) (9)	Austin et al. 2005; Bahrami et al. 1995; Beck et al. 2005; Firssova 2006; Little and Hayes 2003; Lyons 1998; Stewart 2004; Tigelaar et al. 2006a, b
Feedback (5)	Pitts et al. 1999; Tillema 2001; Tillema and Smith 2000; Smith and Tillema 2001, 2003
Training lessons for employees (3)	Austin et al. 2005; Beck et al. 2005; Swallow et al. 2006
Clear goal, structure/framework (also meetings), guidelines, standards (formalized) (13)	Austin et al. 2005; Beck et al. 2005; Bradshaw and Hawk 1996; Bullock et al. 2007; Cayne 1995; Daniel and Stallion 1995; Dixon et al. 2005; Pinder and Turnbull 2003; Snadden and Thomas 1998; Snadden et al. 1996; Tillema 2001; Smith and Tillema 2001, 1998
For mentor (2)	Bradshaw and Hawk 1996; Jun et al. 2007
Collaboration (7)	Bradshaw and Hawk 1996; Daniel and Stallion 1995; Moore and Bond 2002; Pinder and Turnbull 2003; Pitts et al. 1999; Riggs et al. 1997; Smith and Tillema 2001
Learning environment (organizational culture/climate, community of practice) (7)	Dixon et al. 2005; Dornan et al. 2002; Joyce 2005; Little and Hayes 2003; Pinder and Turnbull 2003; Swallow et al. 2006; Wildy and Wallace 1998
Individual characteristics	
Reflection (13)	Austin et al. 2005; Beck et al. 2005; Bradshaw and Hawk 1996; Joyce 2005; Jun et al. 2007; Lyons and Evans 1997; Mathers et al. 1999; Moore and Bond 2002; Pinder and Turnbull 2003; Seng and Seng 1996; Snadden et al. 1996; Swallow et al. 2006; Smith and Tillema 1998
Self-directedness (6)	Austin et al. 2005; Joyce 2005; Little and Hayes 2003; Lyons and Evans 1997; Pinder and Turnbull 2003; Smith and Tillema 1998v
Confidence/trust (5)	Pitts et al. 1999; Stewart 2004; Smith and Tillema 2003; Swallow et al. 2006; Tigelaar et al. 2006a
Flexibility (2)	Evans et al. 2002; Fenwick 2003
Autonomy (7)	Austin et al. 2005; Joyce 2005; Moore and Bond 2002; Orland-Barak 2005; Tigelaar et al. 2006a; Smith and Tillema 1998; Wildy and Wallace 1998
Writing skills (1)	Cayne 1995
Learning style (1)	Snadden and Thomas 1998

Table 8 (continued)

Supporting process conditions	References
Connection with day-to-day practice (see the personal relevance) (9)	Austin et al. 2005; Bahrami et al. 1995; Bradshaw and Hawk 1996; Bullock et al. 2007; Daniel and Stallion 1995; Evans et al. 2002; Joyce 2005; Little and Hayes 2003; Snadden et al. 1996
Answering the employee's learning needs (1)	Bullock et al. 2007
Beliefs (2)	Pearson and Heywood 2004; Tigelaar et al. 2006a
Mandatory (M)/voluntary (V) (6)	Bunker and Leggett 2004; Daniel and Stallion 1995 (M); Joyce 2005 (M); Jun et al. 2007; Swallow et al. 2006 (not M); Smith and Tillema 2001 (should be V)
Time (11)	Bullock et al. 2007; Bunker and Leggett 2004; Firssova 2006; Joyce 2005; Little and Hayes 2003; Lyons and Evans 1997; Pearson and Heywood 2004; Riggs et al. 1997; Tigelaar et al. 2006a; Tucker et al. 2003; Smith and Tillema 1998
Resources (4)	Austin et al. 2005; Bradshaw and Hawk 1996; Bullock et al. 2007; Daniel and Stallion 1995

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The Influence of an Individual's Transactive Memory Profile when Advice Is Sought

Katerina Bohle Carbonell, Bart Rienties and Piet Van den Bossche

Introduction

Since the mid 1980s, the pressure from global competition, consolidation and innovation pushed companies to organise a greater portion of work around teams, as they are more flexible (Kozlowski and Bell 2003). This demands effective organisation of team work and hence, coordination of individual expertise (Faraj and Sproull 2000). The shift from individual to team-based work coincides with the increasing maturity of the information age; an economic setting in which the success of firms and individuals is tied to the efficiency of processing information (Lee and Maurer 1997). Therefore, the key value employees add to the firm is determined by their knowledge base. The links people have are increasingly important as they aid the dissemination and creation of knowledge (Nahapiet and Ghoshal 1998).

The increased value of social networks calls for an efficient coordination of team members' expertise. Expertise coordination is defined as the knowledge of expertise location and the need and ability to bring expertise where it is needed (Faraj and Sproull 2000). This is closely related to the concept of transactive memory system (TMS). TMS consists of a map of expertise location which is created and maintained by a number of processes (Wegner 1995). TMS does not contain the actual expertise, but only where to find it. To illustrate, if two people, A and B, meet for the first time, through conversation, they establish the respective areas of expertise. This information (i.e. expertise area and person's name) will be stored in the TMS. If now A needs help on a certain topic, that person evaluates the different entries created in the TMS and judges who will be able to give the most relevant information on the specific issue.

Previous research on TMS has mainly been conducted in laboratory settings (Hollingshead 1998; Liang et al. 1995; Wegner 1995; Wegner et al. 1985). Those studies have established that TMS decreases the time a team needs to perform a

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task. This performance benefit is dependent on a number of antecedents. For example, familiarity (Lewis 2004; Liang et al. 1995; Wegner 1995), explicit expertise distribution (Liang et al. 1995; Mieg 2006; Moreland and Myaskovsky 2000), communication processes (Hollingshead 1998; Lewis 2004) and stable team membership (Lewis et al. 2007). However, few studies have analysed the impact of TMS within pre-existing teams outside laboratory settings (e.g. Lewis 2004; Palazzolo 2005; Zhang et al. 2007). Borgatti and Cross (2003) analysed a number of factors which influence the retrieval process. Those factors are related to TMS, but not to the individual. A lot of studies have shown the importance of individual factors for team performance (Driskell et al. 2006; Mohammed and Angell 2003; Neuman et al. 1999). Pearsall and Ellis (2006) have shown the mediating impact of TMS on team performance. By building on the model of Borgatti and Cross (2003) and adding the individual dimension, this study seeks to combine the findings regarding individual factors and team performance and TMS and team performance. It contributes to the literature by analysing the impact individual factors and TMS directories have on the retrieval process. This will be addressed through a social network perspective.

TMSs: Guiding Information Search

TMSs are important for the creation of intellectual capital, as they aid the retrieval of information and guide the knowledge creation process (Nahapiet and Ghoshal 1998). The processes within a TMS consist of creating directories for each team member, allocating new information to the relevant expert and retrieving information (Wegner 1995).

The first processes, directory updating, is integral for the creation of a TMS as through this the knowledge map is drawn. Depending on the type of interaction between two people, different types of directories can be created. They vary from directories based on simple observation (e.g. gender) to entries related to the expertise of the person (Wegner 1995). By further interaction these directories are updated in order to accurately represent the team's knowledge distribution.

The second process, information allocation, results in individuals being assigned responsibility for encoding, storing and retrieving information for specific domains (Hollingshead 1998). Information is defined as a flow of messages (Nonaka 1994). By being assigned responsibility to remember certain types of messages, individuals are recognized to have the necessary expertise to create meaning out of these messages, namely knowledge. Knowledge is, therefore, a collection of messages anchored on individual's judgement and beliefs (Nonaka 1994). Not all information is assigned to a single person as some information needs to be accessed by all team members (e.g. reporting style) or cannot be shared due to its tacit nature. Therefore, depending on the work setting teams will develop differentiated or integrated TMS structure. The difference between them lies in the allocation of information. The differentiated structure calls for an allocation of information to the relevant expert,

whereas in an integrated structure, information is allocated to all team members (Hollingshead 2001). Both structures can exist within a TMS, as in most settings team members have different expertise but need regular access to other types of information (Hollingshead 2001). The allocation process results in a distribution of information which is best suited for the team and, therefore, in team members maintaining their cognitive capacity for the tasks at hand (Palazzolo 2005).

Finally, the retrieval process deals with efficient retrieval of information. In this process, the concept of information search plays a major role. The retrieval coordination process contains two steps. Firstly, the accuracy of one's knowledge is being analysed and if not deemed reliable the directories are scanned (Wegner 1995). Next to the acknowledgement of expertise, retrieval from a TMS is associated with a judgement concerning the speed, accuracy, convenience and credibility of the source (Lewis et al. 2007). Retrieval coordination is also the TMS process through which the efficiency of a TMS can be measured (Wegner et al. 1985), as it makes use of the directories created at a prior instance and the information allocation process.

Figure 1 represents the TMS processes. At the start is always the creation of a team, for example a product development team. Through exchanging background information, directories are created. Once new relevant information is available to the team (e.g. the team's budget), this is allocated to the expert. As the team needs to develop a product and market it, a differentiated TMS structure will be developed. Some individuals will be responsible to remember technical details, while others take care of the marketing information. For the technical team to develop a successful product, they need to know the characteristics of the potential consumers. This information they retrieve from the marketing expert.

Prior research on TMSs has shown that familiarity between team members is beneficial for team performance due to the increased accuracy of expertise distribution (Lewis 2004; Liang et al. 1995). Liang et al. (1995) showed that making the

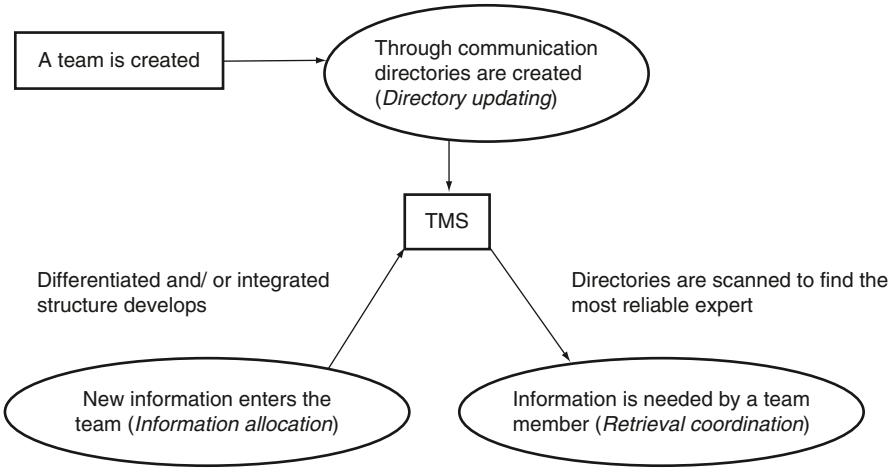

Fig. 1 The TMS and its processes

expertise distribution explicit has a positive impact on performance. A stable team membership is also beneficial for TMS (Lewis et al. 2007). Hollingshead (1998) and Lewis (2004) showed that electronic means of communication does not impact team performance via TMS. Hollingshead (2001) demonstrated that cognitive interdependence and convergent expectations influence the TMS structure. Zhang et al. (2007) determined that task interdependence, cooperative goal interdependence and support for innovation have a positive impact on TMS. Ren et al. (2006) revealed that teams whose work environment is characterised by frequent changes in tasks and knowledge requirements benefit most from a TMS. Palazzolo (2005) showed that self-reported expertise has no impact on the information search process, whereas perceived expertise influences retrieval coordination. Pearsall and Ellis (2006) revealed that the positive impact of assertiveness on team performance is mediated by TMS.

These prior studies show that the main benefit of TMS for teams is the increased performance. However, if a team experiences a high turnover, it needs to adapt its structure to the new expertise distribution (Lewis et al. 2007). Teams, which hold on to the old structure, will experience a drop in performance, as newcomers are pushed to replace the leaving expert irrespective of their knowledge base. For individuals, the greatest advantage of TMS lies in the freeing of cognitive capacity (Palazzolo 2005), as in case of lacking knowledge they know who to contact for help. However, this also makes team members dependent on each other.

Knowledge Sharing Within Teams: Influencing Factors

The section above demonstrates the benefits of establishing a TMS. Less insight is available on factors that influence their development. In looking for possible powerful factors, this study refers to a different strand of literature focusing on knowledge sharing and its influencing factors. This is relevant as for knowledge systems to work efficiently its users need to be able and willing to use it. For this, team members need to vocalise their knowledge in order to update directories and coordinate information retrieval.

Several studies have been conducted addressing factors of knowledge sharing within teams. One such study was done by Cabrera et al. (2006). They revealed that personal factors have the strongest impact on expertise sharing. De Vries and Hooff (2006) studied personal and team related drivers behind eagerness and willingness to share knowledge. Next to making a distinction between willingness and eagerness to share, they also differentiated between knowledge collecting and donation (i.e. asking others for information and telling others about one's own information). Willingness and eagerness to share one's expertise were both related to collecting and donating knowledge. Willing to share one's expertise is also influenced by team agreeableness and extraversion, while eagerness is only influenced by team extraversion. Team extraversion also has a direct impact on collection of knowledge. Driskell et al. (2006) proposed a model detailing how different facets of personal-

ity influence the areas of team work. Based on prior studies by Cannon-Bowers et al. (1995), they use eight dimensions needed for a team to succeed and argue for the compatibility of personality factors for each dimension. Of interest for this research is the dimension of shared situational awareness and communication. The reason for this is that establishing a common ground is necessary for the creation of directories as this enables teams to have a shared idea concerning the distribution of expertise (Palazzolo 2005). Communication is important for the further development and refinement of TMS. Based on this conceptualisation, extraversion plays an important role within these two dimensions of team performance.

This discussion shows the importance of individual factors for information search. Extraversion is important for the team communication process and this helps to establish a common ground. This is important for the efficient creation and use of TMS. Communication plays a major role for creating and updating directories, and shared situational awareness is necessary for the team to agree upon the expertise distribution.

The Model

The previous sections have demonstrated the importance of TMS within teams to carry out tasks. It has also been shown that such a system is dependent on certain factors. The present study uses this conjunction. The current model is partly based on the study by Borgatti and Cross (2003) who analysed the influence of knowing and valuing team members' expertise on searching for information. They have shown that those factors have a positive influence on seeking information. The current study will provide an extension of this model by analysing the role of extraversion in teams. This additional factor is chosen to deepen the understanding of individual influences on TMS.

Knowing

Knowing refers to the awareness of the knowledge held by other team members (Borgatti and Cross 2003). This awareness entails basic understanding of other member's knowledge and is the basic building block for a TMS. Knowing somebody's expertise implies that a negotiated or expert entry was created for this individual. The research by Borgatti and Cross (2003) shows that knowing has an influence on information search. Based on this, it can be assumed that knowing somebody's expertise plays an important role when seeking information.

The relationship between knowing and information search can also be viewed from a network perspective. The concept of centrality and density plays a role for this perspective. Centrality is defined as the position somebody has within a network based upon the relationships this person has with team members (Freeman 2000; Hanneman

and Riddle 2005). This concept takes the whole network into account. Therefore, it determines the status of the person in a group and the influence over the outcome of team actions. Ego-density relates to the number of adjacent team members and, therefore, those who can be directly influenced (Hanneman and Riddle 2005).

It was argued above that knowing plays an important role for the information search as it implies that team members are aware of one's knowledge base. Based on this, it can be argued that a high awareness of expertise results in a central position in the information search network as other know of one's expertise and therefore direct the information search to this person. By the same token, people, whose expertise is known, should have a high density of ties—as a direct contact with the expert is of greater benefit for the information search process.

Valuing

Valuing somebody's information is the process of judging its importance for the accomplishments of tasks. During this process, all directories are analysed. Together with what kind of information a person can provide ("knowing"), the TMS directory also includes a "feeling of knowing" (Wegner 1995). This measurement determines if a team member is believed to be a reliable source of information on this topic. In the research of Borgatti and Cross (2003), valuing also plays a major role in information search. As argued above, it can be said that if team members consider somebody's expertise important to accomplish their work, they are going to direct their information search to this person. For this reason, actors whose expertise is valued will have a central position in the network and have a higher density of ties than those whose expertise is less valued.

Extraversion

Studies analysing psychological factors like extraversion have mainly focused on the effect of these factors on performance (e.g. Mohammed and Angell 2003; Neuman et al. 1999). Based on the argumentation by Driskell et al. (2006) and the results of Pearsall and Ellis (2006) it can be said that extraversion is important for team performance. Driskell et al. (2006) differentiate between four different facets of extraversion: Dominance, affiliation, social perceptiveness and expressivity. They argue that excluding dominance these factors have a positive impact on shared situational awareness and communication. Following their reasoning, people who are high on affiliation have a greater tendency to share their expertise with others (shared situational awareness) and exchange more information (communication). Social perceptiveness, the ability to collect and process information about others, influences shared situational awareness positively through the capability to develop a common ground with others and aids communication within the team as those people have greater

communication skills. People who are viewed to be more positive and likeable (expressivity) are predicted to have greater tendency to share contextual information with others (shared situational awareness) and tend to have better communication skills. Based on this description of extravert people and their role for team work, it can be assumed that information is more often sought out from those individuals.

Method

The Teams

Two teams were analysed. The first (CLS) is a consulting firm with 17 consultants. Their support ranges from project realisation to change management and the development of talent. Team members are assigned to a project based on their expertise and personal preferences. The size of the team is determined by the nature and goal of the project (one to five participants).

The second team (ELP) is made up of talent managers (15 people) at a manufacturer for electronic products. Their responsibility is to manage and foster the talent pool of so-called "High Potentials". The members of this team are all based in their respective country and, therefore, the main form of interaction is through email or telephone. Only in the Netherlands several team members are co-located. In addition, the individual tasks are similar, only adapted to the needs of the talent residing within a country.

The main differences between these teams are their form of interaction and the expertise distribution. While CLS benefits from regular face-to-face contact, this communication channel is not present in ELP. The tasks done by CLS require a number of different expertises, while in ELP individuals conduct similar tasks. Therefore, it is assumed that CLS has a predominantly differentiated TMS structure and ELP an integrated. Both teams also develop only one TMS. In ELP, most projects are done on an individual basis; therefore, only one TMS exists, connecting all team members. In CLS, sub-TMSs develop over the course of a project. However, as the sub team is dissolved after the finalisation of the project, the TMS created during it is not further maintained. Rather, the directories in the overall TMS are updated and the information allocation process is adapted to the specialisation needed for the project. Therefore, directories contain the information for what companies a team member worked for, but not specific information about that company. In this way, confidential information is not incorporated into the TMS.

The Instruments

The dependent variable, information seeking, was created by combining two items: GetInfo and GiveInfo. The 32 participants had to estimate how often they retrieve

information from their team members (GetInfo) and how often they give information to team members (GiveInfo). This was done to counter estimation bias of individuals, as research has shown that people have problems remembering with who they interacted for what purpose in what time frame (Borgatti and Cross 2003). A five point Likert scale was provided, ranging from "never" to "very frequently" and "I do not know this person" in case no tie exists. The dependent variable was created using the same steps as Borgatti and Cross (2003). GiveInfo was transposed (i.e. reversing the rows and columns in the matrix) to have an estimate of how often information was received from a team member. This was added to the GetInfo scores, and the average was calculated. The resulting value is the average frequency of received information based on estimates from both actors involved in the information search process (sender and receiver of information).

For the relational variables knowing and valuing, the survey items were taken from Borgatti and Cross (2003). The following questions were asked respectively "I understand this person's knowledge and skills. This does not necessarily mean that I have these skills or am knowledgeable in these domains, but that I understand what skills this person has and domains they are knowledgeable in" and "This person has expertise in areas that are important in the kind of work I do". This formulation does not make a distinction between explicit and implicit knowledge, but just queries the awareness team members have of each other's work related expertise. The answer for both questions was given in the form of a five point Likert scale from "strongly disagree" to "strongly agree" with the possibility to indicate if no tie is present.

Finally, the ten item survey for extraversion was taken from Goldberg et al. (2006). A five point Likert scale was provided for the answers (alpha 0.898). The scale for extraversion ranges from 1 (very introvert) to 5 (very extrovert), 3 being the neutral point.

Analyses

The two networks are analysed via three methods. First, the actor's position in the information search network is analysed via an analysis of variance (ANOVA). Second, network graphs are used for a visual analysis of the team. Third, a regression analysis is conducted on the networks to provide further insight into the relationships. The visual analysis was conducted via the network graph drawn with NetDraw, the graphical programme of UCINET. Social network graphs are powerful tools to understand the social interaction processes within organisations (Katz et al. 2004; Rienties et al. 2009).

The first analytical step was to group actors in different clusters. This was done via a cluster analyses in SPSS. The goal of the cluster analysis is to structure the cases in homogenous groups. The decision on the number of clusters was based on the changes in homogeneity of groups (expressed by the coefficient of similarity) when joining different clusters. Additional criterions were the significance of the

number of clusters expressed by the resulting ANOVA analysis and the usability of the case structure for further analysis. In this study, due to the small size of the network more than four clusters was seen to render the structure meaningless. The variables knowing, valuing and extraversion were analysed in a combined cluster analysis as they are assumed to influence information search. An ANOVA analysis was conducted to see if cluster membership has an influence on the position in the network. For the graph analysis, the actors' TMS profiles were added to the networks to analyse their impact on information search. This analysis was further supported by a multiple regression quadratic assignment procedure (MRQAP). A MRQAP is equivalent to a normal regression analysis, however adapted to relational data. This adaption is necessary as network data are not independent. The MRQAP parameters are estimated using the same method as for a classical regression analysis, however, the significance level is calculated using a randomization technique (Borgatti and Cross 2003). In this case, 10,000 random permutations were chosen.

Data Preparation

The data for information search were collected in a relational format. This has to be transformed for the graph and ANOVA analysis. For the ANOVA analysis, centrality and density figures were calculated. These are two frequently used measures to determine the position of actors in a network. Freeman's degree of centrality (Freeman 2000; Wasserman and Faust 1994) measures whether a team member is central in the network. If many team members are looking for information from a knowledge worker, that team member will have a high degree of centrality. The ego network density measures the number of direct contacts a knowledge worker has. As the research focuses on information search directed towards individuals, centrality and ego-density, scores are based solely on ties going towards an actor (in degrees). To be able to calculate these figures, the data were dichotomized. For this, a cut-off value had to be chosen to determine how strong a relationship has to be in order for it to be present. As the centrality and density figures take overall network characteristics into account, the teams were analysed together in the ANOVA analysis. Regarding the cut-off value, a tie was seen to be present if information was sought out more often than rarely. This cut-off value had to be chosen, as the two networks differed with regard to the mean amount of information search (3.14 for CLS and 2.44 for ELP). A higher cut-off value would eliminate a high number of links in the ELP network and result in its exclusion in the ANOVA analysis.

For the graph analysis, a different cut-off value was chosen as the teams were analysed separately. A tie is present between two people if the frequency of information search is above the mean value plus once the standard deviation. This implies that for CLS, a tie was present if the value was above 4.56 (information sought out very often). For ELP the cut-off point was 3.66 (tie present if information sought out often).

Results

ANOVA Analysis

A short analysis of the two teams reveals that they do not differ a lot. Only the difference in information search is significant (Table 1). The correlation table (Table 2) shows that knowing and valuing are strongly correlated with each other and with information search.

The cluster analysis reveals three TMS profiles (Table 3). Cluster 2 and 3 mainly differ with regard to extraversion, as actors in cluster 3 are highly extrovert whereas in cluster 2 they are neither extrovert nor introvert. Actors in cluster 1 have low values of knowing and valuing but therefore tend to be extrovert rather than introvert. Table 3 also shows that the centrality scores for cluster 1 are lower than for cluster 2 and 3. The density scores do not vary a lot. The cluster distribution suggests that the individual characteristic of extraversion is a defining factor with which actors can be grouped. In addition, it suggests that the expertise of introvert individuals is also known and valued in a team.

The ANOVA analysis reveals that the cluster distribution plays a role in how central an actor is in the information search network (df = 30, F = 7.296, p-value = 0.003). The post-hoc analysis shows that cluster 2 and 3 differ significantly from cluster 1 regarding the centrality of team members. The main difference between those clusters is the level of knowing and valuing, suggesting that they have a stronger impact on an actor's position in the information search network than extraversion. Density scores do not differ between the three groups (df = 30, F = 0.236, p-value = 0.789).

Table 1 Description of teams

	CLS variable info				ELP variable info				T-test
	M	SD	Min	Max	M	SD	Min	Max	
Extraversion	3.69	0.64	2.8	5	3.9	0.75	2.1	5	1.137
Knowing	3.63	1.54	0	5	3.33	1.48	0	5	0.18
Valuing	3.36	1.57	0	5	3.32	1.37	0	5	−0.844
Info search	3.14	1.43	0	5	2.44	1.22	0	5	2.781**

**$p < 0.01$

Table 2 Correlation of extraversion, knowing, valuing and information search

	Knowing	Valuing	Info search
Extraversion	0.204	0.231	0.216
Knowing		0.922*	0.598*
Valuing			0.687*

*Correlation significant at the 0.01 level (2-tailed)

Table 3 Description of clusters

	Cluster 1 (low knowing and valuing, medium extraversion)	Cluster 2 (high knowing and valuing, low extraversion)	Cluster 3 (high knowing and valuing, high extraversion)	ANOVA
Membership CLS	35.29%	35.29%	29.41%	
Membership ELP	50.00%	7.14%	42.86%	
Cluster centre: knowing	2.81	4.19	4.13	
Cluster centre: valuing	2.7	3.93	3.93	
Cluster centre: extraversion	3.63	3.07	4.31	
M value of info search	2.3	3.31	3.12	
STDEV info search	0.63	0.33	0.82	
M value of centrality	42.31%	78.10%	81.88%	$F = 7.296^{***}$
STDEV centrality	26.81	27.14	20.93	
M value of density	86.28%	92.45%	88.02%	$F = 0.236$
STDEV density	17.96	8.88	10.66	

$^{***}p < 0.001$

Visual and Regression Analyses of CLS and ELP

Figure 2 illustrates the social network of CLS and Fig. 3 the network of ELP. Social networks depict who is communicating with whom and the direction of communication (Freeman 2000). For example, in Fig. 2, person J directs the information search to person L, which is indicated by the direction of the arrow (Wasserman and Faust 1994). In addition, M and H in Fig. 2 have a so-called "reciprocal link" as they both have indicated that they contact each other. Second, some individuals within the network are more central than others (Russo and Koesten 2005; Wasserman and Faust 1994). In particular M in Fig. 2 and J in Fig. 3 are central persons within their team. Third, some knowledge workers are on the outer fringe of the network and are not well connected. For example, P and Q in Fig. 2 and F and K in Fig. 3. Finally, when looking at the cluster profiles, it appears that knowledge workers who are in the centre of the network have high extraversion scores (cluster profile 3).

In the centre of the network of CLS is an employee with tenure above ten years (M). That person is high on extraversion and is the target of the information search of most other employees. At the outset of the network are mainly employees who score low on extraversion (cluster profile 2). Actors who do not score high on extraversion (cluster 1 and 2) also receive incoming ties. This suggests that the combined impact of extraversion, knowing and valuing influence the decision from who to seek information. In addition, the visual analysis shows that the degree of knowing and valuing play a more important role in information search than the degree of extraversion, as knowledge worker who are part of the 2nd cluster profile receive more incoming ties than those of the 1st cluster profile. A MRQAP regression anal-

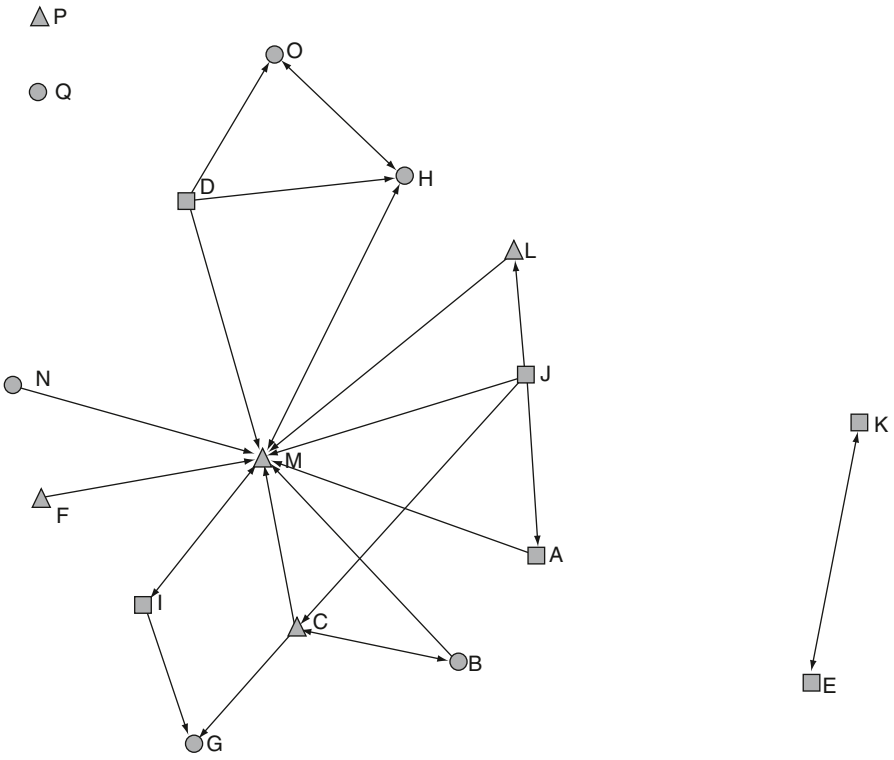

Fig. 2 CLS information search network—*square* = cluster profile 1 (low knowing and valuing, medium extraversion); *circle* = cluster profile 2 (high knowing and valuing, introvert); *triangle* = cluster profile 3 (high knowing, valuing and extraversion)

ysis supports these findings (Table 4). All three variables are a significant predictor for information search (Model 1–4).

The ELP network shows that knowledge workers who are part of the 3rd cluster profile receive more incoming ties than the others. While only one member is introvert, a large number of knowledge workers are part of cluster profile 1 (medium extraversion and low scores for knowing and valuing). The visual analysis reveals that such team members have a less central position in the team and have less incoming ties. As mentioned in the description about the teams, the actors in the ELP network are dispersed in the world with the exception of participants E, G, I, J, K, M, N. They are able to get to know each other's expertise on a deeper level. This close contact between those knowledge workers may explain why actor E, being the only introvert, receives incoming ties. The information search in this team shows that quick access plays a role. This is shown in the regression analysis (Table 4). The analysis also reveals that if all factors are taken into account, the value team members attach to other's expertise does not influence information search (Model 4).

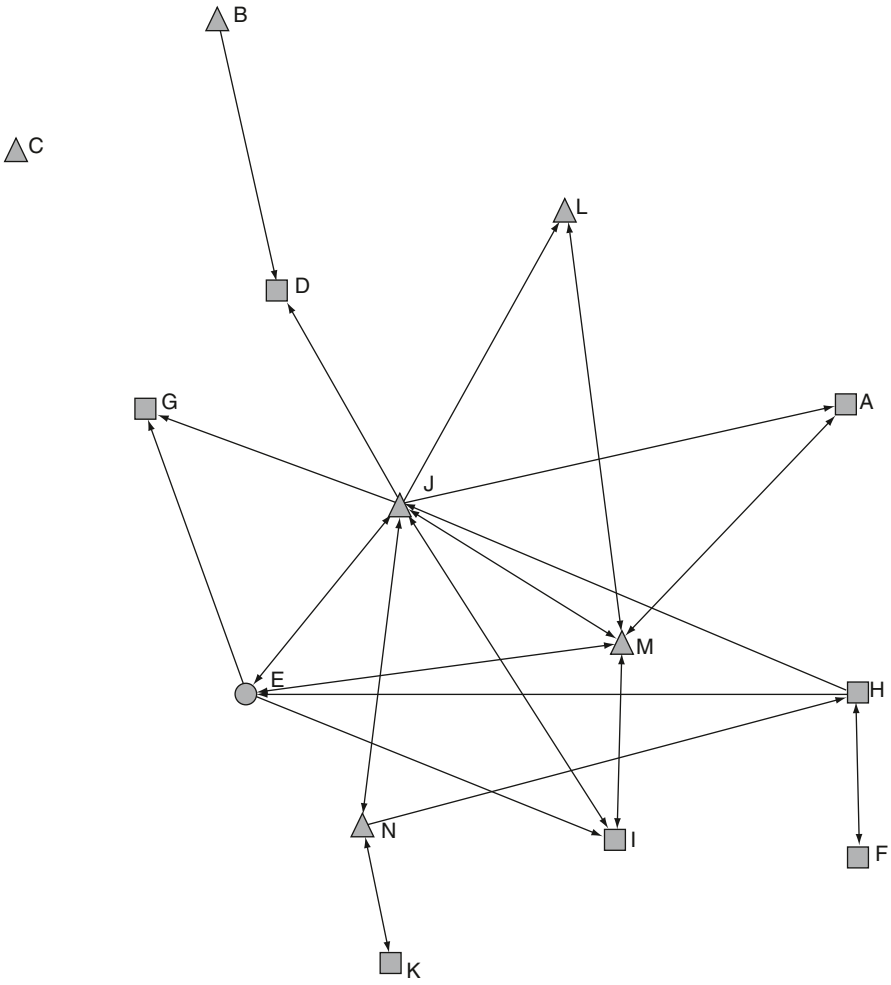

Fig. 3 ELP information search network—*square* = cluster profile 1 (low knowing and valuing, medium extraversion); *circle* = cluster profile 2 (high knowing and valuing, introvert); *triangle* = cluster profile 3 (high knowing, valuing and extraversion)

Comparing those two networks, it can be seen that the information search is geared more towards one person (M) in CLS, while in ELP people operating at the headquarter of the company and having the 3rd cluster profile take on a central position. In both networks, those people who score low on extraversion are on the periphery of the network (cluster profile 2), suggesting that extraversion plays a role when looking for help. A regression analysis confirms this for CLS but not for ELP.

The ELP network, in which the expertise of team members' overlap due to the similarity of the projects, demonstrates less clearly that extraversion influences the information search process. The central actors in the network share the same loca-

Table 4 Regression analysis

Variables	Model 1	Model 2	Model 3	Model 4
(a) CLS				
Age	–0.24**	–0.093	0.004	–0.091
Gender	–0.037	0.048	–0.079*	–0.075
Tenure	0.149	–0.002	–0.024	0.052
Education	–0.089	0.11*	0.116*	0.074
Extraversion	0.33*			0.122*
Knowing		0.754***		0.370***
Valuing			0.777***	0.438***
Adj. R-square	0.084	0.567	0.59	0.64
(b) ELP				
Age	–0.012	0.019	0.007	0.022
Gender	–0.014	–0.073	–0.055	–0.064
Education	–0.025	–0.064	–0.042	–0.056
Tenure	0.086	0.076	0.091	0.075
Residence place	0.453**	0.287**	0.330**	0.289**
Extraversion	–0.019			–0.015
Knowing		0.540***		0.395***
Valuing			0.492***	0.168
Adj. R-square	0.188	0.451	0.418	0.453

*$p<0.05$; **$p<0.01$; ***$p<0.001$

tion, suggesting that face-to-face contact plays a role for information search. In addition, knowledge workers on the fringe of the network are mainly part of the 1st cluster profile, indicating the combined impact of knowing, valuing and extraversion on information search.

Discussion

The goal of this research was to analyse the impact of extraversion, knowing and valuing on information search in teams, the 3rd process in TMS. Previous research has established that knowing and valuing team members expertise has an influence on this process (Borgatti and Cross 2003). This study argues that the degree of extraversion of individual team members also influences the process. The reason for this is the impact extraversion has on team performance, especially with regard to creating a common ground and efficient communication processes (Driskell et al. 2006). Both aspects are important for a TMS, as a unanimous recognition is necessary for the creation of TMS and good communication processes keep the directories up to date.

The analysis reveals that TMS profile has an impact on the influence a knowledge worker has in the network. While the centrality scores differed between the three TMS profiles, this is not the case for density scores. A possible reason for this

could be their low variations. The analysis of the graphs also shows that knowledge workers who can be attributed to the 3rd cluster profile are more often in central position. This implies that knowledge workers who have high scores of knowing and valuing are able to control the information flow within the team due to their central position. These two variables seem to have a bigger impact on centrality than extraversion, as individuals in cluster 2 are neither extrovert nor introvert, but have a central position. This provides an extension to the result of Pearson and Ellis (2006). They showed that team performance benefits from TMS if critical team members are assertive due to the improved communication flow. The results presented here add to this by showing that the degree of awareness and valuing of other's expertise influence the communication flow in a team. Therefore, the benefit of assertive critical team members is based on team members knowing and valuing their knowledge. In this way, they have a central position in the network and can guide the information flow to the necessary person. Based on the cluster analysis, two conclusions can be made: Firstly, introvert individuals can also have central position in a network and, secondly, knowing and valuing are important determinants regarding an actor's influence on the team's information flow.

The visual analysis of the two networks provides further clarification regarding the influence of the cluster profiles on information search. In addition to the findings of the ANOVA analysis the graphs show that extraversion has an impact on the direction of information search in a TMS. The regression analysis provides an explanation why the influence of extraversion is not as pronounced in the ELP graph. It is assumed that extraversion plays a minor role here due to the limited face-to-face contact, which reduces the impact of personality factors. In addition, less importance is put on the expertise of each other as team members have overlapping expertise. Therefore, several reliable sources exist. This shows that in teams with integrated TMS structure, valuing does not play a role for information search. The graphs also show that knowledge workers who are extravert hold connector position between actors, as they link people who have the 1st or 2nd cluster profile. This role of connecting different people in a network is important for the shared situational understanding and the communication process within the team. As mentioned above, a team benefits if its members have a shared understanding of the expertise distribution, as this enables the creation of a good functioning TMS. Communication processes are important for the further refinement and use of TMS, as they ensure that directories are kept up to date. As extravert people hold connecting positions, they enable through their communication skills and willingness to share information that a unanimous recognition exists within a team and that each team member has the opportunity to update the created directories.

Nevertheless, in both networks it seems that next to the personality factors other characteristics influence information search. The CLS team is characterised by a high degree of team work and close contact, which may result in factors like work assignment to be of great importance. In ELP the impact of personality factors may be distorted because of the limited face-to-face contact.

It has to be taken into account that the limited number of participants in each network has an impact on the results. As a consequence of the small size of the

networks, team members were well connected and, therefore, the network characteristics of density may not have played a significant role in the analysis. The small number of team members and the differences between the two teams do not allow analysing the influence of extraversion on knowing and valuing. Future research with larger teams is necessary to analyse this relationship.

Based on the results of this study, teams are advised to have an explicit knowledge map which represents the expertise within the team. Through this map, the knowledge of every team member will be well known and the negative impact of turnover is reduced. The findings indicate that students and professionals alike need to learn how to work together in teams effectively using each other's expertise. Business education institutes can encourage these skills for their students by designing group activities and multi-disciplinary problems where students have to work and learn together on team products. In addition, if team work is used in educational settings, intervention should be included in the task structure to help students be aware of the TMS and its processes. This scaffolding will have a positive impact on their performance and therefore also on the learning outcome.

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