

In the business of learning : approaches to learning of undergraduate students in business

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In the Business of Learning

Approaches to Learning of Undergraduate Students in Business

Janneke Hooijer

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In the Business of Learning:
Approaches to Learning of Undergraduate Students in Business

PROEFSCHRIFT

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1. Approaches to learning in business

Students' academic performance has been the focus of research in higher education for many years. Academic or study performance, i.e. the success of studying in terms of grades and credits, is related to the approach to learning a student adopts. Empirical evidence suggests that students' approaches to learning are influenced by, among other factors, students' perceptions of their learning environment (e.g. Ramsden, 1984; Eley, 1992; Segers, Gijbels, & Thurlings, 2008; Struyven, Dochy, Janssens, & Gielen, 2006). Characteristics of the learning environment, like discipline, educational principles and assessment methods, influence students' approaches to learning. The implication may be that different disciplines ask for different learning approaches. Accordingly, the key research question in this dissertation is: Which approach to learning leads to success for undergraduate students in business and how can students be stimulated to use this approach? This chapter provides an overview of the research on approaches to learning, the factors that influence these approaches, and the specificities of approaches to learning in the business discipline. Moreover, this chapter outlines the studies presented later in this dissertation.

1.1. Students' approaches to learning

The history of approaches to learning

Research into student approaches to learning has developed from a variety of research schools and traditions. As an introduction to this dissertation, I briefly discuss the history of the different research streams and conclude with the current state in this field.

In different parts of the world, researchers started looking in the 1970s into the way students learn in higher education. All these different research groups have enriched the conceptual framework but have apparently led to some confusion on terminology as well. In Sweden, Marton and Säljö (1976) started with phenomenographic experiments to learn more about the process of student learning. Phenomenography is an approach to research aimed at describing, analyzing and understanding experiences. In their experiments Marton and Säljö asked students to read an article. Immediately afterwards the students were asked to explain what the article was about and to describe how they had set about reading the article. They were also asked about their general approach to studying. Five weeks later, the same students were unexpectedly asked the same questions again. Students' answers were systematically analyzed and could be divided into different approaches representing deep and surface levels of processing. A surface approach to learning involves rote memorization without seeking meaning, unrelated memorizing and a lack of goal directedness (Marton & Säljö, 1997; Richardson, 2000). A deep approach to learning means that a student learns with an intrinsic interest and seeks meaning in what is being learned, drawing on previous knowledge and processing what is learned thoroughly (Marton & Säljö, 1997).

At around the same time in Australia, Biggs started his research on relations between personality and academic performance. Instead of using naturalistic experiments, as Marton and colleagues did, Biggs did quantitative research in the everyday university context. He studied the assumption that the relation between personality and academic performance is brought about with mediation of students' study behavior. Study behavior is understood as an emphasis on certain learning strategies, such as rehearsal and summarizing (Biggs, 1993). Biggs developed a questionnaire for students to measure this study behaviour, the 10-scale Study Behaviour Questionnaire. This questionnaire had too many scales to be of any use. Because all these scales were interrelated, the next step

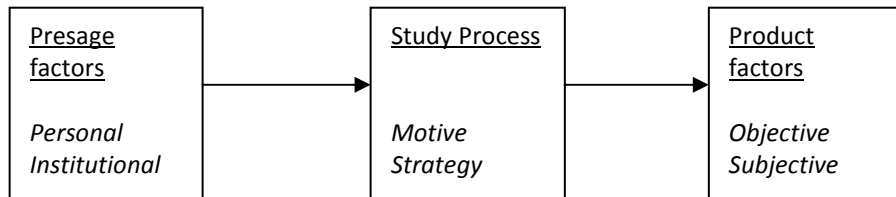
was to reduce this number by second order factor analysis. These higher order factors were each composed of motivation and strategy items. This led to the conclusion that the approach to learning is a combination of the motives for learning a task and the strategies employed to realize these intentions. The Study Process Questionnaire was developed on the basis of this motive-strategy congruence theory. Three motive-strategy combinations were found, based on instrumental motivation, intrinsic motivation and achievement motivation. To achieve consistency with the terminology of other researchers, Biggs called these combinations surface, deep and achieving approaches. The deep and surface approach are ways in which a student can engage in the context of a specific task to be accomplished, whereas the achieving approach describes the way in which students organize their time and working environment (Biggs, 1993).

To capture the influence of the learning context on students' motive-strategy combinations, Biggs developed a model in which the study process mediates between presage factors and product factors (see figure 1). *Presage factors* are factors that exist before the students enter into the learning situation, such as personal and institutional characteristics. Personal presage factors are relatively stable and can be regarded as predispositions to engage in certain learning activities. The institutional presage factors are things like the structures of the curriculum and courses, and teaching and assessment methods. *Product factors* are identified in terms of academic performance, either objectively or subjectively defined. It can be the quantitative amount of learning, i.e. how much has been learned, or the quality of learning, i.e. to what extent a student is able to apply his knowledge or transfer it to another situation etcetera. The presage factors can affect academic performance by affecting students' motives and strategies for learning. The *study process* has two meanings: the metacognitive process of deciding how to handle a given task in a specific context and the tactical process of specific cognitive strategies being used (summarizing, memorizing, discussing with a fellow student). This model is at the

heart of research on student approaches to learning. Several variations and additions have been suggested (e.g. Nijhuis, Segers, & Gijsselaers, 2005), but the basics of presage, process and product factors remain fundamental.

Figure 1.

Biggs' learning model (Biggs, 1978)



Because of the increasing attention for metacognition in the late 1980s, Vermunt started the development of his notion of learning styles as an enrichment of the concept of approaches to learning. He studied the learning of students in both campus-based and distance education. Metacognitive aspects are regulation strategies and mental models of learning. A student's learning pattern is defined by a student's position on four learning components: cognitive processing strategies, metacognitive regulation strategies, conceptions of learning, and learning orientations. Use of the Inventory of Learning Styles (ILS), developed by Vermunt (1996) has shown that four patterns of learning components are frequently found. These patterns have been named the meaning directed learning, reproduction directed learning, application directed learning and undirected learning patterns. These patterns were called styles (Vermunt, 1996) in earlier research. However, because the word style has a suggestion of unchangeability it was recently changed into "learning patterns" (Vermunt, 2005). This theoretical framework has been used for both campus-based and distance education students.

Concurrently with Biggs' work, Entwistle started in Britain with the development of an inventory to measure motivation and study methods. This work on a valid and reliable questionnaire to measure approaches to learning has developed over a number of years, based on research by Marton and Säljö, Pask, and Biggs (Cano-Garcia & Justicia-Justicia, 1994). Entwistle, Tait and McCune (2000) developed a questionnaire that combines the theoretical frameworks of Pask (1976), Biggs (1979), and Entwistle and Ramsden (1983). These efforts have led to a better understanding of the characteristics of deep and surface learning and have revealed a third approach, namely strategic learning (Entwistle, Hanley, & Hounsell, 1979). Entwistle & Peterson (2004) describe this approach as follows; 'The intention to this approach is to do as well as possible in the course guided by an awareness of assessment criteria. (...) This intention leads to organized studying, time management, effort and concentration, involving both self-regulation and an awareness of learning in context' (page 416).

Several meta-analyses of the different theoretical frameworks and corresponding questionnaires have provided proof for the conceptual similarities between the different traditions (Schmeck & Geisler-Brenstein, 1989; Entwistle & McCune, 2004; Wilson, Smart, & Watson, 1996). Entwistle and McCune (2004) gave an overview of several conceptualizations and inventories of student learning, including Biggs' Study Process Questionnaire, Vermunt's ILS, and Entwistle's ASI. Their detailed analysis demonstrated that there is overlap in the inventories. Common elements in all inventories is the distinction between two types of learning processes. The deep, reflective and elaborative processes versus the surface, serial-reiterative, rehearsal process. The third process contains methodical, well-organized studying linked to effort and achievement motivation (Entwistle & McCune, 2004).

Although some researchers have suggested that there is no advantage or argument to include the strategic approach to learning (Richardson, 2000;

Nijhuis et al., 2005), this approach can be clearly distinguished from the deep approach to learning. The strategic approach to learning can be characterized as self-regulated learning combined with effort and concentration and is clearly different from learning with an intention to understand (Entwistle & McCune, 2004). Table 1 provides an overview of the similarities between the different distinctions of approaches to learning (Schmeck & Geisler-Brenstein, 1989; Entwistle & McCune, 2004; Wilson et al., 1996). This overlap between the conceptual frameworks implies that results from research using these different concepts can be piled together in order to get insight in student approaches to learning and the factors influencing this learning. In table 1 the terminology of the different researchers are clustered.

Table 1.

Overview of differences and similarities between learning concepts

	Marton & Säljö	Biggs	Entwistle	Vermunt
Research methods	Naturalistic experiments	Inventory	Inventory	Interviews and existing inventories
Conceptual structure	Levels of processing	Motive-strategy combinations	Combination of intention, motive and process	Patterns of <ul style="list-style-type: none"> • cognitive processing strategies • metacognitive regulation strategies, • conceptions of learning • learning orientations
Learning concepts	Deep approach	Deep approach	Deep approach	Meaning directed
	Surface approach	Surface approach	Surface approach	Reproduction directed & undirected
		Achieving approach	Strategic approach	Application directed

Approaches to learning and their relevance for higher education

Approaches to learning are related to learning outcomes. In early studies this was already confirmed in experimental settings (Marton & Säljö, 1997).

Subsequent research in real-life settings has shown that this relation is not as simple as initially expected.

Overall, deep learning is seen as the most productive and most suitable learning approach in academic education (e.g. Busato, Prins, Elshout, & Hamaker, 1998; Zeegers, 2001; Provost & Bond, 1997; Trigwell & Prosser, 1991; Marshall & Case, 2005; Entwistle, 1997). Numerous studies found a weak but positive relation between the deep approach to learning (or its equivalents in other conceptual frameworks) and quality of learning or academic success (e.g. Sadler-Smith, 1996; Boyle, Duffy, & Dunleavy, 2003). However, other studies did not find this relationship (e.g. Bruinsma, 2004; Norton & Crowley, 1995; Duff, Boyle, Dunleavy, & Ferguson, 2004; Provost & Bond, 1997; Minbashian, Huon, & Bird, 2004, Ramburuth & Mladenovic, 2004). Some of these studies also concluded that a surface approach is negatively related to academic success (e.g. Provost & Bond, 1997; Ramburuth & Mladenovic, 2004). There are no clear-cut answers to explain the erratic findings on the relation between a deep approach to learning and academic success. Several authors suggest that the assessment procedures in higher education do not reward a deep approach to learning (Bruinsma, 2004; Provost & Bond, 1997; Duff et al., 2004). Minbashian et al. (2004) analyzed the relation between approaches to learning, exam grades and some other indicators of quality of exam responses. They concluded that the lack of correlation between a deep approach to learning and grades was not explained by a lack of understanding but because of a deficiency in the quantity of the response on the exam questions (Minbashian et al., 2004). In this respect, Beattie, Collins, and McInnes (1997: page 1) already noted that “it is unrealistic to assume that a deep approach to learning is universally desirable”.

Despite decades of research on this topic, there is no clear picture arising from these studies. Over the years, some criticism has been voiced on the wide acceptance of the concept of approaches to learning. For instance, Webb (1997) expressed fundamental critique on the theory of knowledge and methodology

on which the deep and surface approaches to learning are based. Similarly, Beattie et al. (1997) argued that the deep-surface distinction is an oversimplification of the reality of student learning. They claim that the preference is just as much based on research findings as on a normative view on academic learning. In this respect, the deep approach to learning may be a style of learning that is particularly useful and appropriate for an academic career (Haggis, 2003). Although there is an awareness of these criticisms, most researchers in this field are still convinced of the merit of research drawing on these concepts (Peterson, Rayner, & Armstrong, 2009).

The deep approach is thus generally regarded as the preferred approach to learning. Practical implications of this 'deep learning' conviction are that educational research should now provide knowledge for educators on how to stimulate this deep learning of students. Experimental research projects with the purpose of promoting the deep approach to learning in students therefore became the focal point of research on student learning. In the next section some of these experiments are discussed.

Factors influencing approaches to learning

Contextual factors

There are numerous factors that influence the approach to learning that a student adopts. The student's perception of the context in which the learning takes place is seen as one of the most important factors (Entwistle & Ramsden, 1983; Entwistle, 1991; Wilson & Fowler, 2005; Papinczak, Young, Groves, & Haynes, 2006; Norton & Crowley, 1995; Wierstra, Kanselaar, van der Linden, Lodewijks, & Vermunt, 2003). Efforts in educational design and development have been mainly directed at getting students to adopt a deep approach to learning by designing and implementing stimulating educational environments. Some of these projects produced the expected effect, that is, students increased their deep approach to learning (Hall, Ramsay, & Raven, 2004) or decreased their

surface approach to learning (English, Lockett, & Mladenovic, 2004). Yet, numerous other studies did not produce the expected results, sometimes even opposite ones: that is, students increased their surface approach to learning (e.g. Vermetten, Vermunt, & Lodewijks, 2002; Struyven et al., 2006; Baeten, Dochy, & Struyven, 2008; Gijbels & Dochy, 2006; Nijhuis et al., 2005). The effect on the strategic approach to learning was not taken into account in these studies. Different explanations are given for the failure of these experiments. For instance, these educational innovations were perceived by the students as having a high workload and unclear goals (Struyven et al., 2006; Gijbels & Dochy, 2006; Gijbels, Segers, & Struyf, 2008; Nijhuis et al., 2005).

In a study of the effects of a reformed learning environment on students' learning strategies, Vermetten et al. (2002) concluded that direct influence of instructional measures on learning processes does not take place. They studied the effects of an educational reform project aimed at improving the effectiveness and efficiency of the learning process. These reforms failed to influence the learning strategies towards more deep and self-regulated learning. Moreover, the students did not report any change in learning strategies when compared with a control group. This result is reported by Wilson & Fowler (2005) as well. They compared two educational designs in their influence on students' approaches to learning: a conventional course and an action-learning course believed to stimulate a deep approach to learning. Wilson and Fowler (2005) found that the educational environment did not influence approaches to learning of students who are already using deep learning strategies. Students who typically used a surface approach adopted more deep learning strategies in the action learning course compared to the conventional course (Wilson & Fowler, 2005).

The overall picture of the influence of educational environment changes on students' approaches to learning is therefore ambiguous. This ambiguity calls

for further research. Long-term effects of a certain educational environment may provide a deeper understanding of its impact.

Personal factors

There is some proof of the influence of gender on approaches to learning (De Lange & Mavondo, 2004; Paver & Gammie, 2005; Elias, 2005). From previous research a mixed picture with regard to gender differences in approaches to learning emerges. Some studies support the notion that female students use a more surface oriented approach to learning (Duff, 2004). Sadler-Smith (1996) and other researchers found proof for gender differences in their studies among business students. Females show more of a surface approach to learning on a self-report inventory. More particularly, they reported higher levels of anxiety associated with a surface approach to learning (Sadler-Smith, 1996; Duff, 2002 and 2004). Other studies did not find gender differences in approaches to learning (Wilson et al., 1996). Moreover, in educational studies there are no broadly supported theoretical models to explain gender differences in approaches to learning.

Some studies have also considered the influence of a student's age on his approaches to learning. It seems that older students tend to adopt more appropriate approaches to learning. That is, they show more meaning directed learning (Vermunt, 2005) and adopt the surface approach to a lesser extent than younger students (Duff, 2004).

These findings on the influence of personal factors further complicate any deliberate effort to improve students' approaches to learning.

1.2. Learning in business education

Several researchers suggest that the discipline students are learning relates to their learning strategies (e.g. Vanderstoep, Pintrich, & Fagerlin, 1996; Hativa & Birembaum, 2000). Donald (2002) extensively studied disciplinary-specific learning and thinking. She observed that students vary in their approach to learning, depending on their course or program. For instance, students in professional programs are more pragmatic and achievement oriented while students in pure science tend to be more oriented towards meaning (Donald, 2002). This suggests that the disciplinary setting may encourage or hamper deep learning.

The research projects described in this dissertation are all done in the discipline of business. The specific content of this field, the way knowledge is structured, the traditions in the research methodology, as well as the motives for students to choose a study in this field, all influence the way students (learn to) learn. The business discipline has some characteristics that can be compared to those of other disciplines. For example, the multidisciplinary nature of the business discipline resembles that of education. The behavioral aspects in management and marketing topics of the business discipline can be compared to similar aspects of psychology. The pragmatism and solution orientation resembles that of the engineering discipline: in both business and engineering programs, for example, students learn to think and act in terms of deliverables and interests of stakeholders when working on projects and assignments. The resulting attitude is also likely to have an impact on the (strategic) learning approach adopted.

In their recommendations for further research, Beattie and co-authors claim that “it is widely believed that accounting attracts a relatively high proportion of reproducing and achieving students” (Beattie et al. 1997, page 10). Sadler-Smith (1996) found that students in a business studies program score higher on the strategic approach to learning compared to computing, accounting

and related disciplines. In a recent study, Nelson Laird, Shoup, Kuh and Schwarz (2008) found a difference in the prevalence of deep approaches to learning between different disciplines. The deep learning approach prevailed in the soft, pure life fields compared to hard, applied non-life fields (Nelson Laird et al., 2008). These dimensions to classify disciplines were developed by Biglan (1973). A soft, pure life field is characterized by low consensus on the knowledge and methods (soft), directed on creating knowledge (pure) and focused on 'life systems' (life), for example psychology or anthropology. On the other hand, a hard applied non-life field is characterized by high consensus (hard), directed at applying knowledge from another field (applied) and studying inanimate objects, for example industrial or mechanical engineering (Biglan, 1973; Nelson Laird et al., 2008).

1.3. Research questions

This overview of research on approaches to learning and the factors that influence them makes clear that numerous studies have not yet provided a clear cut idea with practical relevance for educational practitioners. The key research question in this dissertation therefore is:

Which approach to learning leads to success for undergraduate students in business and how can these students be stimulated to use this approach?

To answer this question three studies are presented that are designed to shed more light on the issue of student approaches to learning within undergraduate business education. The first study deals with determining the most successful approach to learning for undergraduate business students. In the second study the influence of the educational environment is studied in a longitudinal project comparing two undergraduate programs in business. The third study is a design based research project on the development of a protocol for study counsellors to

help students improve their approach to learning. In the next section, these studies will be introduced more elaborately.

1.4. Overview of the studies

The first study is a cross-sectional study among three consecutive cohorts of first-year students. The correlation between approaches to learning and study success of these students is analyzed. Approaches to learning are measured by means of the ASSIST questionnaire developed by Entwistle and colleagues (Entwistle, Tait, & McCune, 2000). Study success is measured in terms of the grades and credits for all first-time exams during one academic year. The analysis of the data reveals a significant relationship between the strategic approach to learning and study success. In addition, no correlations are found between the deep or surface approach to learning and study success. This is inconsistent with the broadly accepted idea that the deep approach to learning leads to the best study results.

Secondly, a longitudinal study on the variability of learning strategies is reported. Many educational experiments are based on the premise that students' approaches to learning can be changed by changing the learning environment. However, previous research has failed to provide evidence for either variability or stability of approaches to learning. Three perspectives on this issue are proposed: a personality trait perspective, a development perspective, and a contingency perspective. These perspectives are tested with a longitudinal study on the development of approaches to learning in two different educational environments. Analysis of the data implies that approaches to learning are rather stable over time, in line with what the trait perspective implies.

Thirdly, a design-oriented study is conducted to develop a model for counselling students at risk for drop-out. This model is intended to help students who are at risk for drop-out, by changing particular aspects of their approaches

to learning. Twelve cases then serve to pilot test this counselling model. The effects of the counseling interventions on the study performance and further educational career of each of the twelve students are discussed. Finally, recommendations for further research on this model are given.

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2. Students' approaches to learning and academic performance in business education: A reassessment of deep and strategic learning

2.1. Introduction

Since knowledge has become the most important capital, the success of any society arises from high quality education. Hence, factors influencing educational success have gained increasing interest among researchers and professionals in the field of higher education. In this respect, students' learning strategies are considered to be important resources for achieving academic results (Marton & Säljö, 1997; Richardson, 2000).

In higher education, three learning strategies are distinguished: deep learning, surface learning and strategic learning. Deep learning is generally defined as learning with an intrinsic interest, that is, the student seeks meaning for himself and thoroughly processes what is learned (Marton & Säljö, 1997). Surface learning can be characterized as a tendency to learning by rote, unrelated memorizing, and a lack of goal directedness (Marton & Säljö, 1997; Richardson, 2000). Strategic learning involves an approach to do as well as possible guided by an awareness of assessment criteria motivated by a will to succeed, and a high level of organization (Entwistle, Hanley, & Hounsell, 1979). So far, deep learning has been adopted as a normative framework for (re)designing educational environments and systems, while surface and strategic learning typically raise a negative connotation, especially in academia (Entwistle, 1997; Marshall & Case, 2005; Zeegers, 2001; Busato, Prins, Elshout, & Hamaker, 1998; Diseth, 2003; Minbashian, Huon, & Bird, 2004; Nelson Laird, Shoup, Kuh, & Schwarz, 2008; Vanderstoep, Pintrich, & Fagerlin, 1996). To promote deep learning, educators have engaged in designing educational environments affecting students' learning styles and supportive systems. However, these

efforts have not been very successful (Vermetten, Vermunt, & Lodewijks, 2002; Struyven, Dochy, Janssens, & Gielen, 2006; Nijhuis, Segers, & Gijssels, 2005).

In spite of all conceptual, metrical and diastical progress as well as numerous efforts to create supportive educational environments, many academic institutions are still facing high drop-out rates – an average rate of 30% – in their educational programs (OECD, 2008). At the same time, in the Netherlands, universities are under pressure to provide efficient education and students are pressured to graduate within the nominal time frame. The question is why it is so difficult to stimulate students to adopt a deep approach to learning and increase their performance. One explanation may be that the concept of approaches to learning is a complex construct, including at least two dimensions: a specific strategy which involves 'seeking meaning' and a specific motivation characterized as an 'interest in ideas' (Entwistle, Tait, & McCune, 2000). This combination makes it very difficult to induce deep learning. A second explanation may be that a large number of other factors, next to the educational environment, influence student learning and performance. Here, factors as diverse as personality, previous educational experience and gender have been studied (Diseth, 2003; Duff, Boyle, Dunleavy, & Ferguson, 2004; Sadler-Smith, 1996; Vermunt, 2005). Third, the deep approach learning may not be equally effective in each academic discipline (e.g. Vanderstoep et al., 1996; Hativa & Birembaum, 2000).

As mentioned in chapter 1 the focus of this study is on the business discipline. Although this discipline has been the context for previous studies (e.g. Sadler-Smith, 1996; Ballantine, Duff, & McCourt, 2008) it is still unclear what the relations between approaches to learning and academic success are in this field. Therefore, this chapter returns to the heart of the approaches to learning research. In particular, we explore whether and how deep, strategic and surface learning relate to success in undergraduate business education. The outcome of this study may serve to develop a more refined and balanced framework

supporting both individual counseling of students as well as the design of educational environments for business education.

The remainder of this chapter is organized as follows. First, we review previous studies on the effectiveness of deep and other learning approaches and explore the nature of the business discipline. This leads to several hypotheses on learning approaches and performance in business education. Subsequently, the research method adopted in this study is outlined, followed by a description of the results. Finally, the implications and limitations of the main findings of this study are discussed.

2.2. Theoretical background

Entwistle et al. (2000) developed a questionnaire that combines the theoretical frameworks of Pask (1976), Biggs (1979), and Entwistle and Ramsden (1983). This questionnaire includes the concepts of deep, surface and strategic approaches to learning. Entwistle et al. (2000) define a deep learner as someone seeking meaning for himself with an interest in ideas, and using evidence and relating ideas while learning. The surface approach involves a lack of understanding, a lack of purpose, fear of failure and syllabus boundness. The strategic approach refers to a student who organizes his studying, manages his time, monitors the effectiveness of his efforts, is aware of the assessment demands and is motivated to achieve. Some researchers have suggested that there is no need to include the strategic approach to learning (e.g. Richardson, 2000; Nijhuis et al., 2005). However, the strategic approach to learning can be clearly distinguished from the deep approach to learning and should therefore be included in research on students' approaches to learning (Entwistle & McCune, 2004).

Generally speaking, deep learning is now widely assumed to be the most effective learning approach in academic education (e.g. Busato et al., 1998;

Zeegers, 2001; Provost & Bond, 1997), or at least the approach that should be encouraged among students as much as possible (Entwistle, 1997; Marshall & Case, 2005). Nevertheless, some elaborate criticism on the acceptance of deep learning as the ultimate goal of higher education have been voiced (e.g. Haggis, 2003; Webb, 1997; Beattie, Collins, & McInnes, 1997). This criticism has not stopped researchers to try to develop educational designs that enhance the deep approach to learning of students (e.g. Vermetten et al., 2002; Struyven et al., 2006; Baeten, Dochy, & Struyven, 2008; English, Lockett, & Mladenovic, 2004; Hall, Ramsay, & Raven, 2004; Nijhuis et al., 2005; Papinczak, Young, Groves, & Haynes, 2006; Norton & Crowley, 1995). However, these attempts to get students to adopt a deep approach to learning by changing the educational system have not been very successful (e.g. Norton & Crowley, 1995; Nijhuis et al., 2005; Papinczak et al., 2006; Struyven et al., 2006). In fact, there are indications that a strong emphasis on deep learning may lead to opposite results. For example, Nijhuis et al. (2005) transformed a course into a problem based learning format, which is believed to enhance deep learning because it stimulates students to think about their own learning goals. This transformation, however, had the opposite effect: students' surface learning increased and their deep learning decreased (Nijhuis et al., 2005).

Another example is the work by Norton and Crowley (1995), who studied the effectiveness of an integrated 'approaches to learning' program for first year psychology students. Their program showed significant benefits in terms of the performance of students. However, the workshop did not affect deep approaches to learning. They concluded that the program may very well have encouraged students to adopt an approach that leads to good results in terms of examination grades (cf. strategic learning), but that this is not part of a deep approach to learning (Norton & Crowley, 1995).

The lack of success of attempts to increase the deep approach to learning has not yet been explained in a satisfactory manner. One possible explanation

might be that students do not feel a need to change their approach to learning on the basis of some changes in one course or semester. If they have experienced success with their 'normal' approach, it is unlikely they would abandon this approach in favour of another one with uncertain results. In fact, why would students who have been successful in their academic career (thus far) need to change their approach to learning? In the studies mentioned above, no data are available on the correlations between approaches to learning and academic success before the experiment started. Therefore, the goal of the experiment, i.e. to get students to adopt a deep approach to learning, may be irrelevant for successful students. Overall, the emerging body of evidence suggests the need to reevaluate the concept of the deep approach to learning as the most effective approach for success in higher education.

In different disciplinary contexts, different learning styles and approaches have been found to be effective (Vanderstoep et al., 1996; Hativa & Birembaum, 2000). In an extensive study, Donald (2002) observed that students vary in their approach to learning, depending on their course or program. Students in multi-disciplinary professional programs were found to be more pragmatic and achievement oriented, whereas students in pure science programs tend to be more oriented towards meaning (Donald, 2002). This suggests that the disciplinary setting supports or inhibits academic (deep) learning.

Business education has some characteristics that may discourage a deep approach to learning. In this respect, Beattie et al. (1997) noted that "it is unrealistic to assume that a deep approach to learning is universally desirable" (page 1), and that it is widely believed that accounting (a key component of any business curriculum) "attracts a relatively high proportion of reproducing and achieving students" (Beattie et al., 1997, page 10). Moreover, Sadler-Smith (1996) found that students in a business studies program scored higher on the strategic approach to learning compared to computing and other related disciplines. Ballantine et al. (2008) found that students increase their surface and

strategic approaches to learning during their studies in business and accounting courses, while their deep approach to learning did not change. The business discipline was not included in the comparative study conducted by Donald (2002), but this discipline contains elements that can be compared to those of other disciplines. For example, the multidisciplinary nature of the business and educational disciplines are very similar (cf. Donald, 2002). Moreover, the pragmatic and problem solving orientation of the business discipline resembles that of the engineering discipline (cf. Donald, 2002). In both education and engineering, students are required to make practical applications of what has been learned to new situations. The real test of knowledge in these fields is in the practical application (Donald, 2002). That is, in both business and engineering programs students learn to think and act in delivering solutions and consider interests of stakeholders when working on projects and assignments. In particular, business education apparently demands and encourages a pragmatic and results-oriented attitude. This attitude corresponds more to the strategic approach to learning than the deep approach to learning.

Concluding, the multidisciplinary and professional nature of business education in combination with the empirical evidence obtained in previous studies suggests the following hypotheses:

- H1. For students in business education, a strategic approach to learning positively correlates with study performance.*
- H2. For students in business education, a deep approach to learning does not correlate with study performance.*
- H3. For students in business education, a surface approach to learning negatively correlates with study performance.*

It should be noted that hypothesis 3 is consistent with the findings in studies of other disciplines (e.g. Entwistle, 1997; Marshall & Case, 2005; Zeegers, 2001). There is no reason to assume that this hypothesis might not be valid for business education.

2.3. Method

The empirical study was conducted among undergraduate business students at a Dutch campus-based university (Tilburg University). This section describes the sample of students and measurement of learning strategies and study performance.

2.3.1. Approaches to learning

To measure the learning approach adopted by students we used the *Approaches and Study Skills Inventory for Students* (ASSIST) developed by Entwistle et al. (2000). This questionnaire contains 52 items containing statements about learning. Students could indicate their answer on a 5-point scale, ranging from 'agree' to 'disagree'. Some example items are

- *I usually set out to understand for myself the meaning of what we have to learn*
- *Much of what I'm studying makes little sense: it's like unrelated bits and pieces*
- *I go over the work I've done carefully to check the reasoning and that it makes sense*

This questionnaire is developed for campus-based education and has been extensively validated. Various studies found that the internal reliability of all scales is good, i.e. Cronbach alpha's are between .80 and .87 (Entwistle et al., 2000; Tait & Entwistle, 1996; Byrne, Flood, & Willis, 2004; Ballantine et al., 2008). In this study the original English version was used, since the entire research population was enrolled in programs that were completely taught in English. Evidently, a disadvantage of using a self-report questionnaire is that the data obtained are based on self-report only and are not triangulated with other data sources. It is, however, the best method available because it enables efficient

data collection. We checked the validity of this questionnaire for our research population with a confirmatory factor analysis using the LISREL program. The technique of item parcelling is used, because the questionnaire contains a large number of items, i.e. 52 (Hair, Black, Babin, Anderson & Tatham, 2006; Resick, Whitman, Weingarden & Hiller, 2009; Lim & Polyhart, 2006). The parcels are composed by adding the answers of the questions relating to the subscale as indicated in the scoring key of the ASSIST (Scoring Key for the Approaches and Study Skills Inventory for Students). The model fit is examined based on the chi-square goodness-of-fit statistic, the goodness of fit index (GFI), comparative fit index (CFI), normed fit index (NFI) and root mean square error of approximation (RMSEA). Although there are no strict norms, in general a GFI, CFI and NFI of .90 or higher is regarded to represent a good fit (Stevens, 2002). For RMSEA values between .05 and .08 are considered good fit, and values between .08 and .10 are considered mediocre fit (MacCallum, Browne, & Sugawara, 1996).

2.3.2. Study performance

The performance variable in the hypotheses described earlier in this paper refers to study performance in terms of exam achievements. Evidently, intrinsic learning results and exam achievements are two different constructs (Vermunt, 2005). This study focuses on performance in examinations. This performance dimension is what students are held accountable for. It determines whether or not they can continue in the program and impacts their chances of being admitted into high profile graduate programs. The data obtained from the university's exam office involve three indicators of study performance (in brackets we give the term used in the results section):

- grade average: (grade average)
- number of credits gained: (credits)
- sum of the first grade per course x credits per course: (performance)

The *grade average* is calculated on the basis of the grade for the first exam attempt for all courses a student participates in during the entire academic year. This also includes the grades for courses (s)he did not pass. The grading system in Dutch higher education also differentiates in fail grades. Grades are given on a 1 - 10 scale (a grade of 6 or higher implying the student has passed). A student can thus fail with a 5 or, for example, a 2, which indicates the level of performance, a grade 2 being a far worse performance than a grade 5. Grade average can be regarded as a measurement of the quality of learning.

The *number of credits gained* per academic year is determined by adding all credits for the courses for which a student has passed, that is, gained a grade of at least 6. These credits can be gained after one, two or even three exam attempts. This is the measure of performance most relevant to students, since it determines whether one can continue in the study program. The credit system used at Tilburg University is the European Credits Transfer System (ECTS). The standard program in each academic year, in which all students are enrolled, runs

from September to August and consists of courses amounting to a total of 60 credits. The number of credits gained can be regarded as an indication of the effectiveness of learning.

The most sophisticated measure is composed by *adding the grades multiplied (weighted) by the credits per course*. This measurement only draws on all first attempts per course and thus excludes grades and credits obtained via repeated (second or third) attempts to complete a course. This can be regarded as an indicator of the efficiency of learning.

We adopt these three performance indicators because none of them separately provides a comprehensive picture of performance. A student can get a very high grade average by taking part in very few courses, that is, by concentrating his/her effort relative to students that produce a lower average but do so with a full load of courses. The number of credits obtained per year does not effectively differentiate average from good performance (e.g. a grade average of 6.5 versus 8 for students obtaining the same amount of credits). The third indicator, the sum of the credits per course multiplied by the grade per course, allows for a combination of both indicators, but fails to acknowledge that some students may need more time to learn and perform. This is why all performance indicators are included in the analysis as well.

2.3.3. Sample

The research population consists of first-year students in two full-time undergraduate programs at Tilburg University: International Business (IB) and Business Studies (BS). To increase the number of respondents we approached students in two programs. The IB and BS undergraduate programs were selected because both programs are taught completely in English and have a similar content. A total of 389 first year students of three consecutive cohorts were administered the ASSIST. The first cohort consisted of 132 students, the second cohort were 120 students and the last cohort consisted of 137 students. These

data are depicted in table 1. The students were handed the questionnaires during the break of non-compulsory lectures (note that all lectures are non-compulsory at Tilburg University). Researchers were present to answer questions and collected the completed questionnaires immediately. This method for data collection serves to obtain a high response rate. Using non-compulsory lectures may cause an overrepresentation of more active and intrinsically motivated students, because we assume that they are more likely to attend lectures. However, the advantage of high response rates was regarded more important. From a comparison of the total number of credits gained by the research population with the complete cohort, it is clear that the population is slightly biased towards students with more credits (see appendix 1). The implications of this bias are explored in the discussion of the results. The first and third cohort were measured after two months of studying. The second cohort was measured near the end of the first year, i.e. after eight months of studying. Table 1 provides an overview of the sample of students in each of the cohorts in terms of age, gender and nationality.

Table 1.
Age, gender and nationality in the sample

	N	Ø age	M/F	Nationality			
				Dutch	German	Chinese	Other
2001	132	18,9	59% / 41%	87%	5%	1%	7%
2002	120	19,7	36% / 64%	71%	7%	11%	11%
2003	137	19,2	66% / 34%	73%	12%	10%	5%

2.4. Results

We tested the three hypotheses concerning the correlations between learning strategies and success in business education in two steps. First, the validity and reliability of the ASSIST for this specific population was tested. Second, the correlations between the different approaches to learning and study performance were analyzed.

To test the validity of the ASSIST for this specific population, a confirmatory factor analysis was done. For this test, cases with missing data were omitted. The measurement model as intended in the ASSIST provided an acceptable fit on the data, χ^2 (62, N= 350)= 399.73 (P = 0.0); GFI= .89; CFI= .90; NFI= .88; RMSEA= .11.

Table 2.

Reliability of subscales of the ASSIST

	Cronbach α
Seeking meaning	.540
Relating ideas	.541
Use of evidence	.581
Interest in ideas	.581
Organized studying	.599
Time management	.761
Alertness to assessment demands	.561
Achieving	.717
Monitoring effectiveness	.563
Lack of purpose	.745
Unrelated memorizing	.509
Syllabus boundness	.630
Fear of failure	.776
Strategic	.825
Surface	.766
Deep	.759

Cronbach alpha values were extracted to test the internal reliability of each of the main scales and subscales. As may be seen in table 2, alpha values for the subscales range from .509 to .766, which corresponds with the values reported by Byrne et al. (2004) and Ballantine et al. (2008). The alpha values for the main scales range from .759 to .825 indicating high levels of internal consistency.

The second step in the analysis is investigating the correlations between the different approaches to learning and study performance. We used three indicators for study performance (see method section). Table 3 reports the correlations between the approaches to learning and the different measures of study performance for the total population. The positive relation between the strategic approach to learning and performance are significant (.228 to .417) for all indicators of performance. The strongest relationship being that with the measure of performance indicating the efficiency of the learning (indicated as performance in table 3). The deep approach is not significantly correlated with any of the measurements of study performance. A significant, albeit weak, negative correlation between the surface approach to learning and all indicators of study performance (-.091 to -.204) is found. The analysis were done for each cohort separately as well. The results of these analyses are depicted in appendix 2. For the three cohorts the strategic approach is significantly related to all performance indicators. The results for the surface approach are not significant at the cohort level.

Table 3.

Correlations between approaches to learning and performance indicators

Approach to learning	Credits	Grade Average	Performance
Surface	-.091 (p=.049)	-.108 (p=.020)	-.204 (p=.010)
Strategic	.228 (p=.002)	.275 (p=.000)	.417 (p=.000)
Deep	-.061 (P=.188)	.009 (p=.854)	.028 (p=.728)

Significant correlation are indicated in **bold**.

Since we entered students from two different undergraduate programs in our analysis, we analyzed the correlations between approaches to learning and performance for both programs separately. This analysis yielded similar patterns and did not indicate any structural differences between the two groups. Some correlations were not significant at the program level. However, this appears to be a consequence of the smaller number of students in the subgroups. The results of these analysis are depicted in appendix 3.

To establish whether there is a difference in the correlations between learning approach and performance for students with low versus high performance, we conducted an additional analysis. We split up the entire sample of students into high and low performers – high performers being students who performed one standard deviation or more above the average and low performers scoring one standard deviation or more below average. We then tested the difference in scores for the learning approaches of the high and low performers (unpaired sample t-test). The results are shown in table 4. There are no significant differences between high and low performers on their approaches

to learning. This suggests that the findings discussed previously may be slightly biased by the composition of our sample. Since the sample represents a larger number of high-performing students than the total population enrolled in the first year of both undergraduate programs, as explained before in paragraph 2.3.3.

Table 4.
Scores on approaches to learning: a comparison between high and low performers

	High average (sd)	Low Average (sd)	F	Sig.
Surface	37.64 (9.68)	42.49 (9.64)	.003	.960
Strategic	107.32 (13.20)	95.86 (16.01)	3.056	.083
Deep	88.03 (9.90)	84.69 (11.83)	2.029	.157

2.5. Discussion

In this study we tested three hypotheses concerning the relationship between learning approach and performance in business education. This was done by analyzing data obtained from a sample of first-year undergraduate students. The results of the analysis support the hypotheses. The hypothesis that strategic learning correlates positively with study performance for students in business programs is confirmed. In this respect, a positive correlation between a strategic approach to learning and different indicators of study performance was found (ranging between .228 and .417). The second hypothesis, that a deep approach to learning is not significantly correlated with study performance in the context of business education, is also confirmed. There were no significant correlations for any of the indicators of performance (i.e. the correlations varied from -.061 to .028).

The third hypothesis with regard to the negative correlation between surface learning and study performance is confirmed as well. For all indicators of study performance, a small but significant negative correlation was found with the surface approach to learning (scores ranging between -.091 and -.204).

Taken together, these results suggest that the disciplinary context in which students learn has a major impact on the success and failure of the learning approaches they adopt. The premise that deep learning is the best and most effective approach appears not to be valid for business education – at least not for the first year students in the two undergraduate programs in business of this study.

In the remainder of this section, we discuss these findings in more detail. First we look at the methodology of the study. Secondly, we explore theoretical and practical implications of our findings.

2.5.1. Methodological issues

This study measured approaches to learning using a self-report questionnaire, which is an indirect way of measuring actual behavior. This implies that the students in the sample of this study may have reported certain learning behaviors on the basis of their espoused behavior instead of their actual behavior. Therefore, the hypotheses and findings in this study pertain to the espoused behavior of students (cf. Zeegers, 2001; Busato et al., 1998).

Another limitation is that the population of business students studied in this paper involves first year students only. Some research evidence points at a developmental dimension in the approaches to learning adopted by students (Zeegers, 2001; Busato et al., 1998). This might explain both the findings in the present study and the lack of success of attempts to elicit a deep approach to learning. Most of the reported studies aimed at first or second year students. However, it is not unlikely that only (populations of) more mature and experienced students are able to adopt a deep approach to learning.

Finally, the questionnaires used in this study were administered during a lecture. The lectures had no compulsory attendance, so the students did not fairly represent the complete population. The sample was biased towards better performing students. In this respect, the results were checked and analyzed by decomposing the sample into high and low performers (see results section). Obviously, a potential bias towards high-performing and motivated students in the sample cannot explain the lack of correlation between deep learning and academic success. A deep approach to learning, after all, is characterized by intrinsic motivation and interest.

2.5.2. The deep approach: taken for granted too easily?

Our findings raise questions with regard to the general belief in the superiority of the deep approach to learning. Taking a closer look at the existing evidence shows that there is reason to doubt this superiority. Several studies did not find significant relations between a deep approach to learning and academic success (e.g. Bruinsma, 2004; Norton & Crowley, 1995; Duff et al., 2004; Provost & Bond, 1997). Moreover, the evidence we found for the effectiveness of the strategic approach to learning in a large sample of undergraduate business students undermines the superiority premise of deep learning. In this respect, both educational researchers and practitioners should acknowledge the merit of a strategic approach to learning. Especially so in the context of universities who have to meet a certain level of efficiency, i.e. yield high numbers of students that graduate timely. Furthermore, the students are faced with financial restrictions when studying longer than the nominal time. Deep learning may be the optimal approach for a small elite of highly motivated and talented students, but even these students are better off when they can also activate a strategic mindset. One could even argue that research on improving deep learning by changing the educational environment or assessment methods requires students to be strategic in the sense that they should be alert to the demands that the changed

environment puts on them. More importantly, the knowledge society and economy of the 21st century expects universities to educate a large number of (somewhat) less motivated and talented people. These students are more likely to successfully manage the demands of higher education if they adopt – and preferably are trained in – a strategic approach to learning. Another development that supports this premise is the notion that knowledge has limited validity in terms of time. Education should not be focused solely on acquiring knowledge, but more so on the ability to acquire and analyze new knowledge quickly and efficiently.

The results presented in this chapter, help to explain the lack of success of educational experiments aimed at stimulating a deep approach to learning. Even if the deep approach to learning leads to favorable outcomes in terms of quality of learning, an undergraduate student will (also) have a strong interest in grades and credits. As such, grades and credits determine the opportunity to progress in their studies and get admitted to high profile graduate programs.

2.6. Conclusions

The empirical part of this paper suggests that in undergraduate business programs the strategic learning approach is most likely to lead to performance and progress. Therefore, the main conclusion of this study is that students' approaches to learning need to be understood in a particular disciplinary context. Moreover, the learning strategies observed in our study are quite consistent across the cohorts. It therefore seems unlikely that these findings are the result of methodological choices in the study described in this chapter. This implies students preparing to become achievement-oriented professionals in business tend to be successful when adopting a strategic rather than a deep or surface approach to learning. The strategic learning approach is congruent with the behavior expected and required in the world of business – which is goal-

oriented, result-driven and highly organized. Hence, the theory of student learning in higher education should more deliberately consider the disciplinary context in which students are learning. Deep learning might be the best approach in purely academic terms, but in the current system of mass education at many universities, only a small percentage of students intends to pursue an academic career – particularly in multidisciplinary professional (e.g. business education) programs.

This raises the question whether advocating deep learning is more a matter of ideology than of evidence. The deep approach appears to have gained moral superiority, implying that university students should be intrinsically motivated and look for personal meaning in their study, rather than other (more mundane) interests. Deep learning may be optimal from an intrinsic point of view, but not always be the most rewarding or effective strategy from the pragmatic point of view adopted by many students – even in educational environments deliberately designed to enhance deep learning. After all, it is the student's performance in terms of grades and credits that has consequences for the student's future academic and professional career.

Finally, the specific disciplinary context appears to be a very important determinant of the optimal strategies for learning in higher education. The disciplinary context may serve to explain why attempts to induce deep approaches to learning by modifications to the learning environment have been largely unsuccessful so far. In this respect, further research in business and other disciplines could yield more insight. Moreover, it raises the question whether such efforts are likely to be effective in every disciplinary context.

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Appendix 1. Correlations between approaches to learning and performance indicators per cohort

	Cohort average	Research population
ECTS <36	20%	11,4%
ECTS = 60	25%	44%

Appendix 2. Correlations between approaches to learning and performance indicators per cohort

Cohort 1

Approach to learning	Credits	Grade Average	Performance
Surface	-.071 (p=.296)	-.143 (p=.035)	-.116 (p=.433)
Strategic	.204 (p=.002)	.231 (p=.001)	.134 (p=.357)
Deep	-.040 (p=.544)	.037 (p=.584)	-.169 (p=.240)

Significant correlations are indicated in **bold**

Cohort 2

Approach to learning	Credits	Grade Average	Performance
Surface	-.111 (p=.245)	-.119 (p=.212)	-.208 (p=.027)
Strategic	.378 (p=.000)	.491 (p=.000)	.542 (p=.000)
Deep	.016 (p=.870)	.062 (p=.521)	.083 (p=.387)

Significant correlations are indicated in **bold**

Cohort 3

Approach to learning	Credits	Grade Average	Performance
Surface	-.155 (p=.073)	-.104 (p=.230)	-.126 (p=.149)
Strategic	.267 (p=.002)	.345 (p=.000)	.315 (p=.000)
Deep	-.068 (P=.442)	.026 (p=.772)	.033 (p=.709)

Significant correlations are indicated in **bold**

Appendix 3. Correlations between approaches to learning and performance for the two educational programs.

Cohort		Surface	Strategic	Deep
1	Business Studies	.049	.000	-.040
	International Business	-.365	.325	.131
2	Business Studies	-.040	.510	.266
	International Business	-.277	.310	.002
3	Business Studies	-.431	.495	.197
	International Business	-.128	.323	.121

Significant correlations are indicated in **bold**

3. Variability of approaches to learning of undergraduate business students: a test of different perspectives

3.1. Introduction

Substantial amounts of money, energy and creativity are invested in developing and implementing policies and programs intended to improve undergraduate students' learning approaches and performance. Yet, the results show a mixed picture: efforts appear to be largely successful at the graduate level (e.g. Mainemelis, Boyatzis, & Kolb; Legge, Sullivan-Taylor, & Wilson, 2007), while interventions and changes in undergraduate programs tend to deliver poor results (e.g. Baeten, Dochy, & Struyven, 2008; Nijhuis, Segers, & Gijsselaers, 2005; Segers, Gijbels, & Thurlings, 2008; Struyven, Dochy, Janssens, & Gielen, 2006; Vermetten, Vermunt, & Lodewijks, 2002).

For explanations of the lack of success of programs set up to motivate and guide students to adopt an effective learning approach, we explore different perspectives. For one, approaches to learning can be regarded as a personal trait that cannot be changed by training programs. Another explanation could be that effective approaches to learning might come with age and experience with learning in higher education. Approaches to learning can also be regarded as a response to the perceived demands of the educational environment. In this respect, most efforts to enhance students' learning strategies rest on the assumption that students apply ineffective learning strategies that can be corrected by changing the learning environment (e.g. English, Luckett, & Mladenovic, 2004; Legge, Sullivan-Taylor, & Wilson, 2007; Wilson & Fowler, 2005; Hall, Ramsay, & Raven, 2004). In this paper, a longitudinal study serves to explore whether any of these assumptions is valid for undergraduate business students.

In the literature on student learning, three basic approaches to learning have been identified: a surface, deep, and strategic approach to learning (e.g. Entwistle, Tait, & McCune, 2000). Students who use a surface approach to learning use rote learning in order to reproduce without personal involvement or interest. Students adopting a deep approach can be characterized as learning by seeking meaning with an intention to understand. Students using a strategic approach target their learning to what is required for the assessment, to get the highest grade or at least pass the exam (Entwistle et al., 2000).

Educational researchers tend to believe that deep learning is most desirable and should be triggered and supported by learning environments that enhance deep learning (e.g. Chamorro-Premuzic & Furnham, 2008; Entwistle & Ramsden, 1983; Entwistle, 1997; Fyrenius, Wirell, & Silén, 2007; Trigwell & Prosser, 1991; Zeegers, 2004). However, this picture is not so clear for undergraduate business students (Backhaus & Liff, 2007; Sadler-Smith, 1996). In this respect, the strategic approach to learning may lead to academic success, respect and reputation as much as the deep approach does (e.g. Sadler-Smith, 1996). The study presented in Chapter 2 of this dissertation also provides support for this notion. Moreover, undergraduate business and management students appear to have a conception of learning in management that has not been identified among students in other disciplines: a conception of learning as 'gaining a higher status' (Lin & Tsai, 2008). That is, students see learning in business as instrumental to starting a business career.

This raises the question whether and to what extent learning approaches of business students can be influenced. In this respect, we assume students' learning approaches are related to both context variables (Ramsden, 1984; Eley, 1992; Fyrenius et al., 2007; Segers et al., 2008; Struyven et al., 2006) and personality characteristics (Duff, 2004; Chamorro-Premuzic, Furnham, & Lewis, 2007; Diseth, 2003). This leads to three arguments inferred from the literature: students' learning strategies evolve and mature during their undergraduate

learning career (development perspective); students' learning strategies are embedded and locked into their individual characteristics (trait perspective); and the perceptions of the learning environment influence students' learning strategies (contingency perspective).

The aim of this paper is to increase our understanding of the variability among undergraduate business students' approaches to learning. We first theorize about this variability in terms of the above mentioned three possible perspectives. A longitudinal study is then reported in which we explore the variability of approaches to learning in two groups of undergraduate business students enrolled in different educational programs. This corresponds with the recommendation by Ballantine, Duff, and McCourt-Larres (2008) that research should consider students' approaches to learning over a three-year degree program to establish the overall effect of time.

3.1.1. Theoretical perspectives

The literature suggests that learning is a complex process involving both individual and contextual aspects. We summarize these aspects into three perspectives: the developmental, trait, and contingency perspective.

Developmental perspective

Studies of how age, or years of study, affect approaches to learning suggest that maturation affects the approach to learning that is being adopted over the student's learning career (e.g. Sadler-Smith, 1996; Vermunt, 2005). Several studies found correlations between age and approaches to learning, where older students more often adopted a deep approach to learning than younger students (e.g. Sadler-Smith, 1996; Duff, 2004; Vermunt, 2005; Rodriguez & Cano, 2007).

Zeegers (2001) studied the change in student approaches over time, in a longitudinal study among undergraduate science students. He observed a decline

in the strategic approach to learning over time, whereas the deep approach declined in the first year of study after which it returned to its initial level. The surface approach adopted by these science students increased slightly, but these changes were very small (Zeegers, 2001).

Cano (2005) studied the changes in epistemological beliefs in relation to learning approaches. Epistemological beliefs are particular beliefs about knowledge. A naïve belief is that knowledge is simple and certain, and that the ability to learn is fixed (Cano, 2005). Cano found that epistemological beliefs change from naïve and simplistic to more comprehensive and complex beliefs as students go through higher education. These conceptions of learning have a strong impact on the approaches to learning adopted by students.

Other studies also demonstrate that conceptions of learning have a developmental dimension – going from reproducing, that is learning as acquiring factual information, to seeking meaning, involving learning as seeing things in a different way (e.g. Entwistle & Peterson, 2004; Rodriguez & Cano, 2007). Conceptions of learning and approaches to learning are related in the sense that a more advanced conception of learning tends to be associated with a deep approach to learning (Entwistle & Peterson, 2004).

In view of these research results, we assume that students' learning approaches change during their learning career, and more specifically that students' learning approaches will develop from a surface approach towards a deep approach. Therefore we hypothesize:

Hypothesis 1a: Business students' approaches to learning differ between the first, second and/or third year of their undergraduate studies.

Hypothesis 1b: Business students' approaches to learning change in the direction of a more deep approach to learning during the first, second and/or third year of their undergraduate studies.

Trait perspective

Several studies established a statistical correlation between personality and approaches to learning (e.g. Duff, Boyle, Dunleavy, & Ferguson, 2004; Chamorro-Premuzic et al., 2007; Diseth, 2003; Nijhuis, Segers, & Gijssels, 2007). In this respect, personality traits show a longitudinal consistency across the entire life-span (Chamorro-Premuzic et al., 2007). This correlation implies that approaches to learning tend to be a stable trait. Moreover, empirical research by Duff et al. (2004) on the relations between approaches to learning and personality supports the assumption that a student's approach to learning is a subset of his or her personality. The research population in Duff's study involved 146 accounting and business economics undergraduates. Duff et al. (2004) found that the deep approach is correlated with extraversion and openness to experience, and the surface approach is correlated with neuroticism and agreeableness. For medical students in the UK, Chamorro-Premuzic et al. (2007) also observed that personality traits and approaches to learning are correlated. However, these correlations were only modest, which suggests that personality and learning approach are indeed distinct constructs. Similar results were obtained in a study of a large sample of International Business students by Nijhuis et al. (2007).

In line with these findings, we assume that an individual's approach to learning is a stable trait, closely intertwined with his or her personality. The implication is that students' learning approaches do not change significantly during an undergraduate program. To test this assumption we formulate the following hypothesis:

Hypothesis 2: Business students' approaches to learning remain the same over the course of their undergraduate studies.

Contingency perspective

As Entwistle and Ramsden (1983) argued, students' approaches to learning can also be studied in relation to their perceptions of the learning environment. This idea has, since then, been explored in many empirical studies (e.g. Ramsden, 1984; Eley, 1992; Segers et al., 2008; Struyven et al., 2006). For example, Zeegers' (2001) longitudinal study of students' approaches to learning concluded that student approaches to learning are dynamic and amendable to change as a result of their particular learning experiences. A study by Hall et al. (2004), in the context of accounting education at an Australian university, reported an increase in deep learning and a decrease of surface learning as a result of changes in the educational environment. These changes in students' approaches to learning were as intended by the teachers of the course. The changes were statistically significant, yet very small (Hall et al., 2004).

Recent experiments in shaping educational environments draw on the theory of social constructivism. There are many different perspectives on this theory, but they share the central notions of knowledge construction, cooperative learning, self-regulated learning and authentic tasks (Loyens, 2007). The curriculum is designed to support the social constructivistic character of learning, because this is believed to elicit a deep approach to learning in students (e.g. Loyens & Gijbels, 2008).

An older study by Eley (1992) studied the effects of different educational environments. He selected samples of undergraduate students who just completed two courses with distinct mixes of teaching strategies. By collecting questionnaire responses on their learning approaches in these two distinct courses, he tested the effects of student perceptions of teaching and their reported learning approaches in both courses. Eley (1992) found that the more students perceived the education as supportive of student learning, as having clearly defined goals and emphasizing independent learning, the more students reported the use of a deep approach to learning.

Gordon and Debus (2002) conducted a quasi-experiment with students in different teaching modes. They modified the teaching methods in an undergraduate program by integrating cooperative learning by means of problem-based learning and measured the effects using a longitudinal design. Gordon and Debus observed that changes in the teaching methods induced changes in students' approaches to learning. Students first decreased their surface approach to learning and later increased their deep approach to learning (Gordon & Debus, 2002).

Vermetten et al. (2002) compared the development and contingency hypotheses. The development hypothesis (cf. Hypothesis 2a and 2b) implies that when students progress in education, the factor structure underlying their learning strategies and learning orientations will become more focused and will reveal stronger interrelations. The contingency hypothesis implies it is not structural development but the educational context that explains the emerging pattern in approaches to learning (Vermetten et al., 2002). They conclude, on the basis of a longitudinal study, that the development hypothesis holds true for students progressing within one type of education, but that the contingency hypothesis is necessary to explain the different factor structures between different types of education.

Given these research results we assume that the more challenging and stimulating an environment is, the more likely the student is to adopt a deep approach to learning. This perspective leads to the following hypothesis:

Hypothesis 3: Undergraduate business students enrolled in a program that is more challenging and stimulating (e.g. involving real-life practical assignments) differ in their approach to learning from students enrolled in a more traditional program.

3.2. Method

In this study we compare and test the three theoretical perspectives that serve to explain the stability-variability of approaches to learning in undergraduate business education (outlined in the previous section). We compare students in two undergraduate programs at a Dutch university (Tilburg University): International Business and Business Studies. At the time we conducted our study, the International Business program could be characterized as a 'traditional' educational system; it was largely theory-driven and classroom-oriented. Teaching strategies and methods involved lectures in large groups and tutorials. Assessment was held at the end of each course in the form of a formal written test. The Business Studies program contained some key characteristics of a constructivist learning environment. That is, students worked collaboratively on authentic problems generated from real companies and organizations. Students worked in the same group of five students on all courses and projects during each semester. Assessment was based on the results of their work on practical project assignments as well as written tests. In all other respects, the curriculum of the International Business (IB) and Business Studies (BS) programs were similar – in terms of the usual portfolio of knowledge in Marketing, Organization, Economics, Finance, Accounting, and so forth (with the IB program taking a more international perspective on most of these subjects than the BS program).

To measure the approach to learning adopted by students we used the *Approaches and Study Skills Inventory for Students* (ASSIST) developed by Entwistle et al. (2000). We adopted this questionnaire because it is extensively validated and specifically developed for campus-based education and thus applicable to the Tilburg University setting. Several studies established that the internal reliability of all subscales of this questionnaire is rather good: Cronbach alphas between .80 and .87 were found (Entwistle et al., 2000; Tait & Entwistle, 1996). In a validation study by Byrne, Flood, and Willis (2004), the ASSIST

produced valid and reliable scores for the approaches to learning of accounting students in the USA and Ireland.

Students were administered the ASSIST questionnaire three times during their studies, once in their first year (N=95), once in their second year (N= 82) and once in their third year (N=53). The students in the second and third year all were students who previously participated in the first year measurement. The decrease in number of students in the measurements is mainly caused by students lagging behind in their studies and those dropping out from the program.

The age of the students ranged from 17 to 25, with an average of 19.8 years at the first time of measurement. The gender was equally divided, with 53 percent male students. The majority (87%) of the students was Dutch, 4% was German, 7% was Chinese, and 2% was of other nationalities. The students were equally divided over the programs: 51% Business Studies and 49% International Business.

The hypotheses are tested by means of repeated measures multivariate analysis of variance (MANOVA).

3.3. Results

In Chapter 2, the results of a confirmatory factor analysis to match the fit between the measurement model and the observed data in the population are presented. The results show that there is an acceptable fit. Since the students in this study were drawn from the same population, no further testing of the validity was done. Cronbach's alpha for the scales range between .697 and .783 which is somewhat lower than the numbers reported by Entwistle et al. (2000) and Tait and Entwistle (1996), but still satisfactory (Kline, 1999).

Table 1.

Cronbach's α for the scales of the ASSIST

	Cronbach's α
Strategic	.784
Surface	.731
Deep	.697

3.3.1. Test of development perspective

For hypotheses 1a and 1b to be confirmed, significant differences in approaches to learning over the years had to be observed (in the direction of the deep approach to learning). A repeated measures MANOVA was conducted to test this hypotheses. Mauchly's test indicated that the assumption of sphericity had been violated for the interaction effects of year and approach to learning, with $\chi^2(9) = 30.74, p < .001$. Therefore, degrees of freedom were corrected using Greenhouse-Geisser corrected degrees of freedom ($\epsilon = .74$ for the interaction effect of year of study and approach to learning). At $p < .10$ only one effect was reported as significant. We also established a significant main effect of the approaches to learning, which is obvious since the three approaches to learning (surface, strategic and deep) are not expected to have equal scores. The other effects, year of study and the interaction between year of study and approaches to learning were not significant at the $p < .10$ level. Figure 1 depicts the average scores per year for the three approaches to learning. Thus, there are no significant differences in the approaches to learning adopted in (any of) the three undergraduate years. This can also be inferred visually from Figure 1, which shows that the lines for each of the approaches to learning are nearly flat.

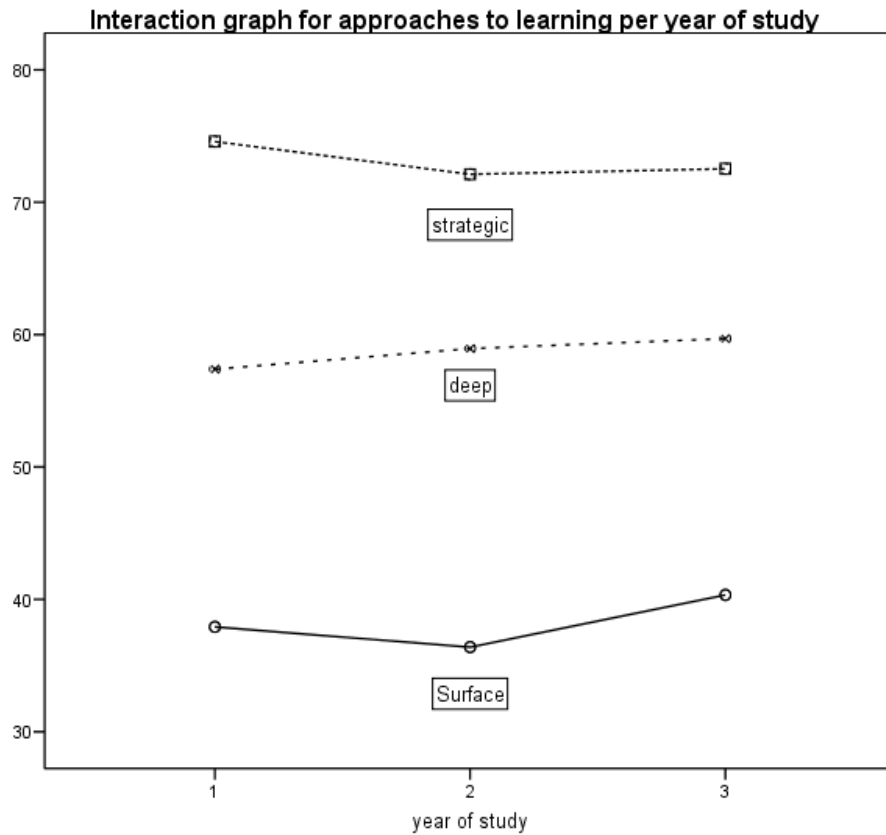
Hence, both hypothesis 1a and hypothesis 1b are disconfirmed. Regarding hypothesis 1b, the analysis reported in Figure 1 does suggest that the students in this sample change their approach to learning in the direction of a more deep approach (although this change is not statistically significant).

3.3.2. Test of trait perspective

The trait model implies there is no significant difference in the approaches to learning across the duration of the undergraduate career (hypothesis 2). To test this hypothesis, the same model as used for hypotheses 1a and 1b can be applied. As such, hypothesis 2 is clearly confirmed. That is, from a statistical point of view, students' approaches to learning are rather stable over the three years of their undergraduate studies. More particularly, the students in our study demonstrate high levels of the strategic approach, low levels of the surface approach, and moderate levels of the deep approach to learning throughout their undergraduate studies.

Figure 1.

Development of approaches to learning for first, second and third year of study



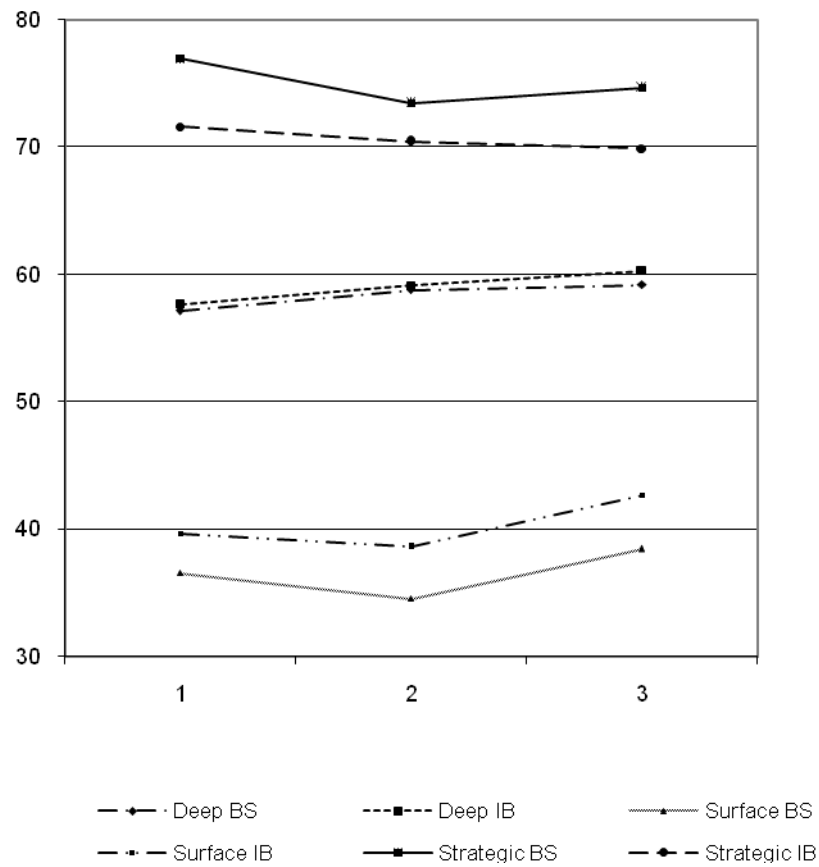
3.3.3. Test of contingency perspective

The Business Studies (BS) program involves team learning using real-life practical assignments, whereas International Business (IB) is a more traditional program. Three repeated measures MANOVA's were done for the different approaches to learning, with educational environment (i.e. the study program) as covariate. The

results are depicted in Figure 2. The results are discussed for each approach separately.

Figure 2.

Development of approaches to learning per program



Development of the surface approach per program.

Mauchly's test indicated that the assumption of sphericity has been met ($\chi^2(2) = 3.6, p > .05$). The results show there was a significant change in the surface approach to learning at the $\alpha = .10$ level ($F(2, 74) = 2.71, p < .10$). We used a repeated contrast for the post-hoc tests because the levels of the independent variable (year of study) demonstrate a meaningful order. This analysis resulted in a significant difference between surface approaches to learning between the second and third year ($F(1,37) = 7.090, p < .05$). Third year students in both programs have higher levels of the surface approach to learning. There was no significant difference between the two educational programs in the (development of) surface approach to learning. This can also be seen in Figure 2, where the lines for both programs are comparable.

Development of the strategic approach per program.

Again, Mauchly's test indicated that the assumption of sphericity has been met ($\chi^2(2) = .110, p > .10$). The results show that there was no significant change in the strategic approach to learning at the $\alpha = .10$ level ($F(2,72) = 1.130, p > .10$). Moreover, there was no significant difference between the two educational programs in the (development of the) strategic approach to learning.

Development of the deep approach per program.

Mauchly's test indicated that the assumption of sphericity is met ($\chi^2(2) = .361, p > .10$). The results show no significant change in the deep approach to learning at the $\alpha = .10$ level ($F(2,74) = 1.231, p > .10$). In addition, the analysis implies there is no significant difference between the two educational programs in the (development of) deep approach to learning.

Overall, these findings therefore lead to the conclusion that hypothesis 3 is not supported.

3.4. Discussion

The primary focus of this study was to test three perspectives on the stability and variability of approaches to learning adopted by undergraduate business students. For each perspective, a hypothesis was formulated and tested by repeated measures MANOVA's. We discuss the results for each model in this section. In table 2 an overview is given of the hypotheses and the results.

Table 2.

Overview of results for the hypotheses

Hypothesis	Result
1a: Business students' approaches to learning differ between the first, second and/or third year of their undergraduate studies.	Disconfirmed
1b: Business students' approaches to learning change in the direction of a more deep approach to learning during the first, second and/or third year of their undergraduate studies.	Disconfirmed
2: Business students' approaches to learning remain the same over the course of their undergraduate studies.	Supported
3: Undergraduate business students enrolled in a program that is more challenging and stimulating (e.g. involving real-life practical assignments) differ in their approach to learning from students enrolled in a more traditional program.	Disconfirmed

The analysis resulted in strong support for hypothesis 2, whereas its counterhypothesis 1 was disconfirmed. Students did not change their approaches to learning over the course of two undergraduate programs in business, which suggests that the impact of their personality traits prevails over the maturation effect. In this respect, the three approaches to learning were tested separately, and none yielded significant changes over the years. The

longitudinal design of our study implies that we only measured the students that last in the program. Therefore, our findings can only be generalized to the “successful” students in these undergraduate programs. As such, students that progress successfully in their studies may not experience any need to change their approaches to learning, because these (are perceived to) have been adequate for the demands of the program. As a consequence, the variability in approaches to learning observed in some other studies (see section Theoretical perspectives) is possibly caused by those students that are less successful in terms of study progress. They might try out other learning strategies to improve their learning results.

In this respect, Wilson and Fowler (2005) observed that students with an inclination for a deep approach to learning are more resistant to change than those adopting a surface approach. Moreover, since the deep approach is positively related to success and the surface approach is negatively related to success (e.g. Zeegers, 2004; Entwistle & Ramsden, 1983; Entwistle et al., 2000), we conclude that successful students in undergraduate business programs tend to be rather stable in their approaches to learning.

The findings with regard to hypothesis 1a suggest undergraduate business students are not likely to develop or change their approaches to learning in the course of their undergraduate program. Thus, the data analysis does not imply a substantial maturation effect. In this respect, this effect may take a substantially longer period to be realized; that is, a three-year undergraduate program may not offer enough exposure and challenges to invoke statistically significant changes in the approach to learning adopted by students. The analysis reported in the previous section indeed suggests a maturation effect (albeit insignificant) – implying that the participants in this study are inclined to increasingly adopt the deep approach over the course of their undergraduate studies, whereas they also somewhat decrease the strategic approach to learning.

Finally, hypothesis 3 was not confirmed: no significant differences in (any of) the approaches to learning have been observed between the two student populations. This is an unexpected result in view of the outcomes of previous studies discussed in the theoretical section earlier in this paper. As such, the effects of changes in the educational environment on students' approaches to learning revealed in other studies (e.g. Baeten et al., 2008; Wilson & Fowler, 2005; Nijhuis et al., 2005) might be caused by the change itself, rather than from the specific (e.g. constructivistic) characteristics of the educational environment. This is similar to the Hawthorne effect: behavioral changes that arise (but do not stick) due to, for example, an awareness of being observed or a positive response to the stimulus being introduced (e.g. Wickström & Bendix, 2000). In this respect, previous studies measured the immediate effects of changes in the learning environment (e.g. Baeten et al., 2008; Hall et al., 2004; Nijhuis et al., 2005), whereas our study measured the longer term effects by way of collecting questionnaire responses over a period of three years. Moreover, none of the earlier experiments compared the approach to learning observed in the 'new' course or program with the one adopted in a regular course or program. Also, meaningful changes in the new educational designs were not compared with meaningless changes in previous studies. This means it is not possible to attribute the effects to the educational principles behind the new design adopted in these experiments. Whether or not this failure to elicit the deep approach can be explained by a lack of the strategic approach –the awareness of the context of learning might be conditional for responding to changes- cannot be explored since these studies did not take the strategic approach into account. Furthermore, the research was set in a real life situation, therefore subjects and conditions could not be controlled. For instance, the smaller numbers of students in later years was a consequence of this setting, which is a reality for most undergraduate programs.

Another possible explanation for the lack of support for hypothesis 3 is that the influence of the discipline is stronger than the influence of the educational environment. In this respect, our empirical findings suggest that successful students in business studies and similar programs combine the strategic and deep approach – with an emphasis on the strategic approach. This combined approach appears to be effective regardless of the educational environment. The prevailing role of the strategic approach to learning also reflects the strongly developed ‘business-like’ mindset that seems to make undergraduate business students different from other undergraduates: the target- and career-oriented conception of ‘gaining a higher status’ (Lin & Tsai, 2008). As such, business education appears to have a largely instrumental function within contemporary societies - similar to the role of other programs targeting a particular profession (e.g. architecture, engineering, medicine). The increasing instrumentalisation and professionalisation of higher education evidently raises ethical and other questions (e.g. Dall’Alba & Barnacle, 2007), that are outside the scope of this study.

Overall, the results of this study give reason to be cautious with implementing new educational designs in undergraduate business education to enhance student learning. Lecturers, program managers and others engaging in curriculum design should first raise and answer the more basic question of what determines a student’s approach to learning, before expensive educational change programs – such as action, project-driven, or problem-based learning – are initiated, assuming this is the best way to improve student learning (cf. Dall’Alba & Barnacle, 2007). When the majority of a students in a certain program already adopts appropriate learning approaches one should question whether changes are desirable.

Some prior work suggests that providing individual training to students to improve their approach to learning may be the most effective solution (e.g. Backhaus & Liff, 2007; Sobral, 1997; Norton & Crowley, 1995). These training

solutions can be focused on those freshmen that enter academia with a surface approach and, at a later stage in the undergraduate program, students that underperform as a result of an inadequate approach to learning. If the approach to learning is largely determined by personality traits and therefore rather inert, the best and most cost-effective way to (attempt to) improve learning by undergraduates in business programs is likely to be at the individual level.

3.4.1. Limitations

This study has several limitations. First, the sample of students we studied is somewhat biased towards more successful students. Students that dropped out from the program or needed to redo a particular year/level, were not included in the repeated measures. However, since this is the reality in undergraduate programs, it does reflect the actual situation of most universities. Second, questionnaire data are based on self-report only. In this respect, we adopted the questionnaire method to be able to compare findings with those of previous studies. Third, because the design of our study did not involve a randomized controlled trial, systematic differences between the two populations in our data cannot be ruled out. However, on some key factors (e.g. age, gender, nationality), the groups in our data were comparable. Fourth, this study focused on quantitative data, collected by means of a questionnaire, that were not triangulated with other data sources. Future studies therefore need to collect qualitative data – for example, by interviewing successful as well as less successful students at different intervals in their undergraduate career – to understand the processes through which students adopt and adapt their approach to learning in a more in-depth manner.

3.4.2. Implications

Although many studies have been done on approaches to learning as well as models and interventions to influence them, a basic framework that explains the

variability of approaches to learning (over time) is still missing. Our study sheds some light on this issue, specifically for undergraduate business students. The findings discussed previously imply that the question of stability and variability should be extensively explored and discussed, *before* one invests substantial effort and resources in educational changes intended to elicit a deep approach to learning. So far, most experiments in this area have had little success, also as a result of the assumption that deep learning is the ultimate academic learning approach. Yet, it is important to continue the search for ways to improve undergraduate learning (in business programs), because it provides the fundament for graduate learning as well as for continuous professional development.

From a theoretical perspective, since both variability and stability in student approaches to learning have been observed (Vermetten, Lodewijks, & Vermunt, 1999; Busato, Prins, Elshout, & Hamaker, 1998), future work in this area needs to explain the generative mechanisms behind the change of approach to learning or the lack thereof. Another question is whether there are different types of students with respect to the stability of approaches to learning. Our study suggests that successful undergraduates may have no reason to change their approach to learning. Moreover, this study also implies that business undergraduates are strongly inclined to adopt a strategic approach to learning, involving a strong orientation towards performance at exams, tests and assignments.

From a practical perspective, our study raises the question whether educational design should be the primary focus of initiatives aimed at improving student learning. Changing particular courses or even entire curricula as a 'one size fits all' solution to improve student learning (e.g. towards problem-based learning) may seem efficient, but it is unlikely to benefit all students. The evidence regarding the inertia of approaches to learning adopted by undergraduates calls for focused interventions, particularly those tailored

towards less successful students. Undergraduate programs should therefore not so much be (re)designed to enhance deep learning but to align with, and build upon, students' rather inert approaches to learning. Moreover, the business-like and career-oriented mindset of business undergraduates may provide a unique challenge to their professors and lecturers, given the prevailing role of the strategic approach to learning – which implies that educational methods and tools developed for other disciplines should be cautiously transferred to teaching in business studies and related programs.

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4. A model to prevent student drop-out

4.1. Introduction

High drop-out rates are a problem in higher education (e.g. Montmarquette, Mahseredjian, & Houle, 2001; Di Pietro & Cutillo, 2008; Araque, Roldán, & Salguero, 2009). The average drop-out rate in higher education programs of all OECD countries is 30% (OECD, 2007). However, little research has been carried out to deepen our understanding and increase our intervention capabilities with regard to preventing and reducing drop-out. Research has mainly focused on the identification of factors that explain student drop-out (e.g. Lassibille & Navarro Gómez, 2008; Arulampalam, Naylor, & Smith, 2005). Although some studies have focused on ways to decrease the drop-out number, these studies offer little information for educational institutions on how to approach this issue. This chapter aims at developing a model for study counsellors to help students who are at risk for drop-out.

4.2. Development of a model for individual drop-out prevention

The main task of study counsellors is to help students who are at risk for drop-out. Most study counsellors apply more or less ad hoc methods and techniques to enhance a student's motivation, to check the appropriateness of a student's study choice, to help a student to better structure his/her tasks, to learn a student to learn, to increase a student's insight in the consequences of his or her living style in terms of studying, etcetera. A general model to diagnose and intervene is often lacking. In this chapter, a model will be presented that can be used in practice by study counsellors to help students not to drop out. Given the current developments in higher education where society demands efficiency in studying in terms of drop-out and duration of studying, grades and credits gain

even more importance for both students and universities. Study counsellors face the task of helping students to meet these efficiency requirements. Whether or not this corresponds with quality of learning is mostly dependent on the quality of education and assessment. However, this topic is beyond the scope of this dissertation. The model developed in this study should be regarded as a practical tool to help the student meet the demands of the program, i.e. obtaining a degree.

In the development of this model a design methodological approach is followed to bridge the gap between academic knowledge about the drop-out mechanisms and the practice in which study counsellors try to be of help. The approach applied in this study is based on the principles for design research in education, as described by Gravemeijer and Cobb (2006) and Van den Akker, Gravemeijer, McKenney, and Nieveen (2006). These sources are embedded in a relatively new design methodology, described by authors like Collins, Joseph, and Bielaczyc (2004), Cobb, Confrey, diSessa, Lehrer, and Schauble (2003), Edelson (2002), and Van den Akker, et al (2006). Design research implies a rigorous analysis of a problem which leads to specific ideas for intervention (Walker, 2006). Design research studies are usually divided into three stages. The first stage is the preparation of the experiment, where the relevant theories and available evidence is analysed, and the specifics of the context are explored. The second stage is the experiment itself; the design is tested in practice and improved if necessary. The third stage is the retrospective analysis, where the results are analysed in terms of the contributions to the theory on which the design is based (Gravemeijer & Cobb, 2006). This retrospective analysis is done in two stages according to the following strategies described by Yin (2003). First the individual cases are analysed, a technique called analyzing embedded units. Second, the technique of explanation building is used for the analysis over the cases.

The three stages of this research are reported as follows. First, we provide an overview of evidence that is used as a basis for the model, including the results of our own research reported in the previous chapters of this dissertation. Subsequently, the design principles for drop-out prevention programs are inferred from this body of evidence. The design of the model is described. Secondly, the test of the model by means of twelve cases, i.e. students who were counselled according to the model, is described. Thirdly the cases are analysed. Finally, the key findings are discussed and recommendations for further research are given.

4.2.1. Overview of relevant research findings

Student drop-out

Many factors have been suggested to explain student drop-out:

- *Educational system*: numbers of students in first-year compulsory courses (Montmarquette et al., 2001), spread of exams and number of parallel courses (Jansen, 2004), and the imbalance between men and women in incumbent courses (Beekhoven, De Jong, & Van Hout, 2003).
- *Academic preparedness*: grades of the student in pre-university education; several studies have found that better prepared students are less likely to drop out of university (Arulampalam, Naylor, & Smith, 2004 and 2005; Smith & Naylor, 2001; Lassibille & Navarro Gómez, 2008).
- *Work orientation*: work-life oriented students obtain better results than non-committed students (Mäkinen, Olkinuora, & Lonka, 2004).
- *Technical skills*: Onwuegbuzie, Slate, and Schwartz (2001) observed that students in a graduate level course lack skills in note taking and reading: these students read material in a passive manner, without making outlines of book chapters before reading them.

- *Self reported factors*: students themselves have indicated that sickness, lack of intelligence and low effort are causes for exam failure (Ling, Heffernan, & Muncer, 2003).

All in all, the first year study results appear to be the best predictors for drop-out in later years (Tait & Entwistle, 1996; Lassibille & Navarro Gómez, 2008). This overview clarifies that there are various and diverse factors related to student drop out, and many of these factors cannot be influenced easily.

Approaches to learning

Research in education has established that students' approaches to learning are related to academic performance. In this respect, three learning strategies have been distinguished: deep learning, surface learning and strategic learning. Deep learning is generally defined as learning with an intrinsic interest, that is, the student seeks meaning for himself and thoroughly processes what is learned (Marton & Säljö, 1997). Surface learning, on the other hand, can be characterized as a tendency of learning by rote, unrelated memorizing, and a lack of goal directedness (Marton & Säljö, 1997; Richardson, 2000). Strategic learning involves a pragmatic approach to do as well as possible in the course guided by an awareness of assessment criteria using a high level of organization (Entwistle, Hanley, & Hounsell, 1979). Evidently, deep learning has been adopted as a normative framework for (re)designing educational environments and systems, while surface and strategic learning typically raise a negative connotation, especially in academia (e.g. Entwistle, 1997; Minbashian, Huon, & Bird, 2004; Nelson Laird, Shoup, Kuh, & Schwarz, 2008; Vanderstoep, Pintrich, & Fagerlin, 1996).

In this respect, chapter 2 and 3 of this dissertation involve studies on the relations between approaches to learning and academic performance and on the factors that influence the approaches to learning which students adopt. These studies show that for undergraduate students in business, the strategic approach

to learning is related to academic performance, while the deep approach to learning is not related to performance in terms of grades and credits. Furthermore, there appears to be no significant development in approaches to learning over time and the educational environment does not influence students' approaches to learning.

Improving study skills and approaches to learning

Tait and Entwistle (1996) reported on a project where a computer-based package to improve study skills was developed. The program produces specific advice for a student, based on the individual score on the approaches to learning inventory. Unfortunately, the data on the effectiveness of the program were not published. Earlier, Martin and Ramsden (1987) examined two programs designed to improve student learning, where one program was aimed at teaching study skills and the other on learning to learn. The program targeted at learning to learn was more successful in terms of changing the skills and conceptions of learning of students. The reasons for this success were that the content of the program was tightly linked to teaching and the curriculum and, moreover, embedded in the departmental context (Martin & Ramsden, 1987).

Because the perception of the educational context is related to the students' approaches to learning (Entwistle & Ramsden, 1983), an intervention program aimed at producing a qualitative change in perceptions of the learning context was developed by Parsons and Meyer (1990). This program was based on the assumption that when a student changes his qualitative perception of the learning context, he will then be able to re-orchestrate his approaches to learning, which would lead to improved performance. The general conclusion of this study was that this program was effective, although hard evidence on the effectiveness was not available (Parsons & Meyer, 1990).

Kaldeway and Korthagen (1995) reviewed research projects on the effectiveness of study skills courses. Study skills courses tend to focus on study

methods, concentration, time management, self-confidence, study motivation and study conceptions. In their review, Kaldewey and Korthagen assessed several study skills courses. This analysis shows that limited and comprehensive skills courses have an effect on either text comprehension or exam results. However, the effects were usually measured in tests specifically designed for the study at hand or in a real exam. Thus, only short term effects are measured in this set-up. All the reviewed studies failed to investigate whether the student also adopted the learned skills in other courses (Kaldewey & Korthagen, 1995).

Later studies, that were not included in Kaldewey and Korthagen's review, provide further evidence. Norton and Crowley (1995) conducted a research project on integrating study skills in the first-year curriculum of a degree program in Psychology. Several optional workshops were offered throughout the year. The program was designed to raise students' metacognitive awareness and also to deal with the technical aspects of learning (study skills). Attending the workshops in this project may have been part of, or may have enhanced, a strategic approach to learning. Students learned explicitly what was expected of them in essay writing and writing examinations within the Psychology department.

In addition, Sobral (1997) studied a training aimed at self-directed learning tasks. Five competencies were expected to develop from this training: personal responsibility, versatility, self-direction, adaptation to demands and self-monitoring. The training was integrated into a regular course and not specifically targeted at students at risk. About two-third of the participants in this course improved in self-efficacy scores on the self-directed learning tasks.

Finally, Campbell and Campbell (1997) studied the effectiveness of a mentoring program aimed at increasing student retention. In this program, students were linked to a mentor with whom they had regular meetings. The program also offered several activities enabling mentors and students to spend time together. The study showed that students who participated in the

mentoring program performed better (academically) compared to students not participating in the mentoring program (Campbell & Campbell, 1997).

4.2.2. Design of the model

To be able to design a model, we first have to explore the design constraints and the design parameters that define the degrees of freedom for the intended model

(1) Design constraints in empirical setting

This study is set in the context of study counselling of first-year Business students at an academic department of a Dutch university (Tilburg University) which enrolls more than 400 undergraduate business students per year. This setting has two implications. First, selection at the gate is not allowed. Students that meet the legal requirement (i.e. a high school diploma that includes particular required courses, e.g. mathematics) must be accepted. Secondly, freshmen at Tilburg University have to successfully complete at least 60 percent of the first-year curriculum within 12 months, to be able to proceed with the program. This hurdle serves as a prevention for student drop-out in later years, because students with a low performance in the first year are likely to drop out of the program in later years (Tait & Entwistle, 1996; Lassibille & Navarro Gómez, 2008). The university is interested in having all capable students graduate within the nominal study time, which implies passing this first year hurdle. For this purpose, study counsellors monitor the progress of all students throughout the first year, and invite students at risk for a meeting to discuss the student's learning approach, resources, interests, and so forth.

Limited to student counselling. Other measures to decrease drop-out, even though likely to be efficient, are not considered in this research project. The model must be usable within the existing (Dutch) institutional and legal structure for student counselling. The purpose is not to make changes in the didactical

approach or curriculum structure of the program or the exam regulations of the university.

Restricted resources. Another constraint to the design model is that there are limited resources available. Thus, the study counsellors need to integrate this model for drop-out prevention in their daily counselling of students with all sorts of problems, not just those students at risk for drop-out.

Quick results. A final constraint is that the interventions by the study counsellor need to produce results within 4 to 8 weeks (depending on the specific student). Most students asking for help are in a rather urgent situation, in terms of low performance at exams and inadequate progress in terms of the 60% target. They therefore need to make changes in their learning approach (and thus performance) within weeks. This means that any model-based intervention should provide ready-to-use solutions.

(2) Design parameters

From the body of evidence reviewed in the previous section and the design constraints, the following design parameters for a model can be inferred:

1. *Focus on the individual student.* Drop-out prevention and/or performance improvement interventions should be targeted at students at risk. The majority of students is successful and has no need to change their approach to learning, even if this approach is not preferred from an academic point of view (see also Chapter 3 for a more elaborate argumentation).
2. *Approaches to learning framework.* The approaches to learning framework has been used in many previous studies and is conceptually and empirically related to study performance. The findings from our own study reported in Chapter 2 (pertaining to the same empirical setting as the design project in this chapter) demonstrate that the strategic approach to learning is strongly associated with academic performance for undergraduate students in

business at Tilburg University. This provides support for the approaches to learning framework as a method to improve student learning.

3. *Flexible*. The model should be flexible in the interventions recommended at the individual level. That is, the diagnosis of the individual student at risk (based on the approaches to learning framework) should inform and motivate the purpose of the intervention, rather than determine a 'single best' intervention in each particular case.

Outline of the model

The model developed from these principles can be outlined in three key phases: (1) diagnosis, (2) awareness, and (3) intervention. Each phase has two steps. These phases and steps are described in the remainder of this section. Figure 1 provides a schematic overview of the model.

Diagnosis

The study counsellor has direct access to the database that registers all performance-related data. At regular intervals, the counsellor receives listings of students that appear to be underperforming in terms of progressing towards the 60% hurdle.

Step 1. Students that the counsellor considers to be 'at risk' are invited to fill in the Approaches and Study Skills Inventory for Students (ASSIST) and talk with the counsellor. These are students who passed less than 60% of their exams so far. The ASSIST is developed by Entwistle and colleagues and measures students' approaches to learning (Entwistle et al., 2000). It contains 52 items containing statements about learning. Students indicate their answer on a 5-point scale, ranging from "agree" to "disagree". Some example items are:

- *I usually set out to understand for myself the meaning of what we have to learn*

- *Much of what I'm studying makes little sense: it's like unrelated bits and pieces*
- *I go over the work I've done carefully to check the reasoning and that it makes sense*

The questions are grouped together in 13 subscales, which are clustered into three approaches to learning, the deep, surface and strategic approaches to learning as described earlier. Table 1 gives an overview of the approaches and the corresponding subscales. Various studies found that the internal reliability of all subscales is good: Cronbach alpha's are between .80 and .87 (Entwistle, Tait, & McCune, 2000; Tait & Entwistle, 1996).

Step 2. The main problems are identified on the basis of the scores for each of the three approaches to learning. The students' scores are compared to an average score obtained from data of the studies reported in Chapter 2 and 3 (first-year students only). Low scores (more than one standard deviation below average) for the deep and strategic approaches to learning are interpreted as an indication of major problems in this area; that is, a substantial underdeveloped capability in deep and/or strategic learning. High scores (more than one standard deviation above average) on the surface approach to learning indicates a too strong inclination towards this approach. These scores are indicated on a form that serves as a guide for the meeting between the student and the counsellor.

Table 1.

Subscales of ASSIST

Approach	Subscale	Content
Deep	Seeking Meaning	Learning for personal meaning and understanding
	Relating Ideas	Linking what is being learned to other courses and previous knowledge
	Use of evidence	Critically assessing the validity of what is being learned
	Interest in ideas	Learning as an exciting and gripping activity
Strategic	Organised Studying	Learning in a systematic and planned manner
	Time Management	Disciplined learning which is evenly spread out in time
	Alertness to assessment demands	Being alert at what the teachers expect and value
	Achieving Monitoring Effectiveness	Striving for a good result Frequent and systematic checking of progress
Surface	Lack of Purpose	Uncertainty about the usefulness and appropriateness of the (choice in) learning
	Unrelated Memorising	Memorising without understanding what or why
	Syllabus Boundness	Focusing on minimum requirements in a course
	Fear of Failure	Uncertain about ability to cope with the study load

Awareness

Step 3. At this stage of the process, the study counsellor has a face-to-face meeting with the student to discuss the students' approach to learning and study habits. The intention is to get insight in the actual learning behaviour and the underlying intentions. Furthermore the subscales for the ASSIST are discussed. The student is informed of his score compared with the average scores of first-year students at Tilburg University and then asked whether this is recognizable. This serves to discuss the approach, the motivation and intentions behind learning in detail. In order to discuss the actual behaviour, the counsellor asks very concrete questions. Some examples of these questions are:

What do you do when you study?

If a student does not answer in terms of actual behaviour, the counsellor will raise more specific questions, such as:

Do you open the book at page one and just start reading, or do you look at the course outline and then select relevant parts of the book?

Do you use a marker to highlight main issues, or do you write important issues down in a notebook to serve as a summary ?

The counsellor asks the same kind of questions for making assignments and preparing exams. In this discussion, the counsellor also inquires about the students' reasoning behind his actual learning behaviour. These questions lead to an increased awareness of the personal intentions and motives (or lack thereof) for the student.

Step 4. Based on the discussion in step 3, the counsellor and the student identify which problem can and should be tackled first. This can be one major issue. It is important that the student realizes why the current learning strategy is problematic and that the student is capable of changing this learning. When the

problems identified are relatively small, two problems can be tackled simultaneously.

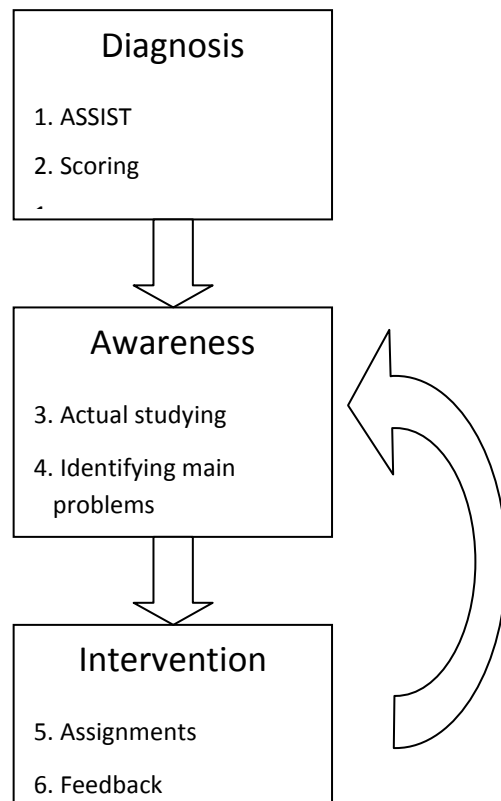
Intervention

Step 5. The problems that were identified in step 4 lead to a choice in interventions, in the form of assignments. These assignments usually involve a focused change in the actual study behaviour (e.g. taking notes in a different way, preparing an exam with another approach). These interventions are changes in the learning behaviour that can be implemented in day-to-day learning immediately. Moreover, the study counsellor has an overview of information resources that can be made available to the student, to help the student to make these changes. These include websites and books (see Appendix 1 for an overview of these resources).

Step 6. During follow-up meetings, the student reports on the experience with the assignment. If necessary, new assignments are discussed, that is, step 4 and 5 are reiterated. This process continues until the student feels that he has sufficient skills and resources to manage his learning on his own again.

Figure 1.

Diagnosis – Awareness - Intervention model



4.3. Testing the model

This model is developed and tested among undergraduate students in business at Tilburg University. Students who contacted the study counsellor for help were offered the opportunity to participate in the study. They received information on the background and purpose of the study. Students who joined the study gave consent that the data of their counselling and study performance were

anonymously used for research purposes. Twelve students participated in the study, four male and eight female students.

In the remainder of this section, the test of the model is described. For each case, i.e. student, a summary of the counselling process, the scores on the scales of the ASSIST and grade average and credits before and after the counselling are given. The data on grade average and credits are extracted from the central administration with the students' permission. Subsequently, several overall results for the students are discussed, using analysis on case level as well as overall explanation building (Yin, 2003).

The following abbreviations are used in the case reports:

GA: Grade Average

SM: Seeking Meaning

AC: Achieving

RI: Relating Ideas

ME: Monitoring Effectiveness

UE: Use of Evidence

LP: Lack of Purpose

II: Interest in Ideas

UM: Unrelated Memorising

OS: Organised Studying

SB: Syllabus boundness

TM: Time Management

FF: Fear of Failure

AA: Alertness to Assessment
demands

Student #1

This student has a history of failures in higher education. She studied in another undergraduate program for two years, without success. She tries studying in the current (business) program because it contained more group-work and real-life assignments. She expects that this would suit her style of learning better.

Diagnosis

She has high scores on three scales of the deep approach to learning. Only on the scale 'interest in ideas' her score is average. For the strategic approach to learning, she scores low on the scales 'organised studying', 'time management' and 'achieving'. She has an average score for the 'alertness to assessment demands' and a high score for 'monitoring effectiveness'. On most of the scales for the surface approach to learning the students has a high score. Only for the 'unrelated memorising' her score is average.

Awareness

The most urgent problem is this student's unorganized behaviour. She has no idea of the nature and demands of the courses she is taking. She does not have any system to organize her paperwork concerning her courses. Moreover, she is unaware of the precise assessment criteria or when any of the assessment activities are planned. She also does not use an appointment book or calendar.

Intervention

The counsellor and student agree she has to get herself more organised. She will sort out all her paperwork concerning her studies and organise everything by course. She will get herself an appointment book and start with listing all lectures and tutorials, due dates for assignments, exams and appointments for her other activities.

During the second meeting with the counsellor, the student explains that she did organise everything but that she is unsure whether she will be able to keep this up. She is not convinced that she needs to keep an appointment book, because she knows all important dates by heart. Some additional probing by the counsellor leads her to admit

that she has missed some assignment deadlines in the past. She feels that she now knows what to do and that she does not need more counselling.

Follow up

This student successfully graduated in the Bachelor program and continued in a Master programme from which she graduated as well.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: high (16)	OS: low (12)	LP: high (10)	0	30	BSc & MSc
RI: high (16)	TM: low (7)	UM: average (9)	GA	GA	
UE: high (16)	AA: low (15)	SB: high (17)	before	after	
II: average (14)	AC: low (12)	FF: high (15)	0	6,2	
	ME: high (17)				

Student #2

This student studies for half a year with little success. He is not very motivated and doubts whether a university program in business is appropriate for his abilities and interests. He is disappointed in the theoretical content and does not like the type of studying that is required.

Diagnosis

His scores vary between low on ‘use of evidence’ and high on ‘interest in ideas’ and average on the other aspects of the deep approach to learning. The same mixed picture arises from the scores on the scales

of the strategic approach to learning. Low scores on 'organised studying', 'alertness to assessment demands' and 'monitoring effectiveness' are combined with a high score on 'time management' and a average score on 'achieving'. He had a very high score on two aspects of the surface approach to learning, namely 'syllabus boundness' and 'fear of failure', and average scores on 'lack of purpose' and 'unrelated memorising'.

Awareness

A discussion on his style of learning makes clear that mainly the low scores on the strategic approach to learning require attention. When he is learning, he does not have a clear idea on what he should be aiming for. The learning goals of the courses are unclear to him. When he starts learning he does not have any plan or intention of what or why he is learning.

Intervention

His assignment is to read the syllabus information for all he courses he was currently taking. These information sheets contain an overview of the general learning goals of a course. After this first meeting, the student informs the counsellor that he decided not to continue the current program. He is going to switch to a program in higher professional education.

Follow up

The student did not stop with the program as he indicated he would. He continued in (various) undergraduate programs in business for four years, but never graduated. After three years his registration as a student stopped.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: average (15)	OS: low (10)	LP: average (8)	11	11	Dropped out after 3 years
RI: average (14)	TM: high (16)	UM: average (9)	GA	GA	
UE: low (13)	AA: low (11)	SB: high (13)	before	after	
II: high (15)	AC: average (14)	FF: high (15)	6,0	6,0	
	ME: low (6)				

Student #3

This student feels that she studied hard for the last half year, yet she fails all of the exams. This leads her to believe that her method for studying might not be very appropriate for the programme. The student is very emotional during the first meeting. She has a hard time accepting that she failed so many exams. It might be possible that her answers on the ASSIST are biased, i.e. she might have given social desirable answers.

Diagnosis

Her scores on the ASSIST feed the suspicion of social desirable answering. She has low scores on the surface approach to learning, combined with high scores on the strategic approach to learning. The deep approach to learning was a bit unclear, combining a high score on 'seeking meaning' with a low score on both 'relating ideas' and 'interest in ideas'.

Awareness

The following aspects were discussed elaborately. The student spends more than sufficient time on her studying. She is aware of the assessment demands, specifically the demands of assignments that are part of the final grade. She reads all the material and highlights what she thinks is important. Usually a lot of text is highlighted this way. She then makes the assignments or test at the end of the chapter when available in the book. If time permits, she writes a summary for each chapter, by writing down all the highlighted bits in her summary. This is obviously very time consuming. During this discussion, the student is very emotional, she is close to tears during the most part. When confronted with this observation, she confirms that she finds it hard to accept that despite her hard work she has not had any success.

Intervention

Based on this discussion, the counsellor and student agree to first focus on gaining efficiency in her learning, specifically to learn to distinguish between main issues and issues of secondary importance. To learn this, she will stop writing her elaborate summaries and instead make schematic overviews and flow-charts to summarize the main points in a chapter. Because she is inclined to copy sentences, she agrees with the counsellor that she should not use full sentences, instead she will use key-words only.

During the next meeting the student is less emotional, even cheerful. She now starts with first reading headlines and subtitles before reading a chapter from start to finish. She does not write elaborate summaries any more. This leads her to spend less time on her studying. Furthermore, she performed very well on her midterm tests. This is enough for her to feel that she is back in control. The few tips on how to identify the main issues in a text help her to manage

her learning more efficiently. She regained her self-efficacy in studying, which is all she needed.

Follow-up

This student graduated in the Business undergraduate programme and then continued in a MSc program from which she graduated as well.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: high (16)	OS: high (16)	LP: low (5)	24	60	BSc & MSc
RI: low (12)	TM: high (18)	UM: low (8)	GA	GA	
UE: average (14)	AA: high (16)	SB: average (9)	before	after	
II: low (12)	AC: average (16)	FF: low (7)	6,9	6,7	
	ME: high (17)				

Student #4

This student decided to stop her studying for now, because her current choice of studying does not suit her interest. She has not passed any of her courses so far. The topics of the program are disappointing for her, she does not find anything that interests her. She contacts the study counsellor for help with her learning strategy because she feels this contributes to her failing in the program.

Diagnosis

The scores on the approaches to learning are very distinct. Low scores on all aspects of the deep and strategic approaches to learning and high scores on the surface approach. Her studying is very inefficient and time consuming.

Intervention

Because the student already decided to stop her studying, there is no point in practicing new learning strategies in her current courses. Instead, she is going to study a book on Psychology, to see whether she would find that more interesting. She is given the same assignment as student # 3; first reading chapter titles and section headings before starting to read the whole chapter, and making flow-charts and schemes as summary of a chapter instead of literal copying complete sentences. This should help her distinguish between main and secondary issues.

Follow up

The student already left the undergraduate program in business (before the intervention). Three years later she started with an undergraduate study in Law at the same university, in which she is currently still enrolled.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: low (12)	OS: low (10)	LP: high (13)	0	0	Dropped out
RI: low (11)	TM: low (9)	UM: high (11)	GA	GA	started BSc
UE: low (11)	AA: low (10)	SB: high (13)	before	after	Law 3 years later
II: low (9)	AC: low (12)	FF: high (15)	0	0	
	ME: low (10)				

Student #5

This student is older than most first-year students (34 years compared to an average age of 19). She is very interested and motivated for this study. She has some work experience in the field of business already and is eager to learn the theoretical and conceptual foundations of what she has seen in real life. She contacts the study counsellor because she is not very successful, despite her hard work. Her main problem is that she focuses too much on the group assignments at the cost of the individual exams.

Diagnosis

She has (very) high scores on all the subscales of the deep approach to learning, with a maximum score on the 'interest in ideas' subscale. Her scores on the scales of the strategic approach to learning are mixed, ranging from a low score on 'alertness to assessment demands' to high scores on the 'achieving' and 'monitoring effectiveness'. Her scores on the surface approach vary from average

on the 'lack of purpose' and 'unrelated memorising' to high scores on the 'syllabus-boundness' and 'fear of failure'. She has high scores on all the motivation scales interested with a motivation to achieve and a fear of failure.

Awareness

An elaborate conversation about her learning strategies reveals that she is very motivated and interested in her studies. This interest sometimes causes her to lose track of her prescribed materials. She has a hard time keeping focused on the topic, because she is constantly looking for ways to link what she is learning to her own experience and to other topics. For instance, when she starts with the course 'introduction to marketing' she is very excited and starts to read about consumer behaviour as well. Even though this might be ideal behaviour from a lecturers point of view, for this student it means that she does not have time to study for the less interesting yet compulsory course in microeconomics. The group assignments cause a problem for her. She likes them very much and wants to give the best performance possible. This means that she is inclined to do all the work including work that other group mates should be doing. For the individual exam she has a hard time focussing on the main ideas. She does not see a difference between main points and secondary issues. She tries to memorise everything, even the examples. This makes her studying very time consuming.

Interventions

The first issue that is tackled is distinguishing between main and secondary points. She gets the same instruction as students #3 and #4; start each new chapter with reading the titles and headlines and make short summaries listing only key-words and schemes or flow-

charts. Next to that she will read the course descriptions when starting on a new course and when starting to prepare for an exam. During the second meeting it becomes clear that she has been trying to adopt as much as possible of the discussion, not just the specific assignment. She has a hard time to 'skip' things, like examples, in a chapter. The counsellor discusses the difference between reading things for understanding or for memorising. She has started to make shorter summaries and this works for her. She realises that shorter summaries are sufficient for her to recall what she has read. Another issue she has trouble with is taking notes during lectures. She tries to write down as much as she can, but because of her constant writing, she tends to miss whole parts of the lecture. Since most of the lecturers make hand-outs, taking lots of notes is not very necessary. Her new assignment therefore is not to take notes during lectures, but to listen carefully to what is being said and trying to understand the reasoning. Directly after the lecture, she can write down the main issues. These tips appear to be helpful for this student.

Follow-up

Despite the fact that her study performance increased after the intervention, it is insufficient for her to remain in the program. She dropped out at the end of the academic year.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: high (19)	OS: average (13)	LP: average (8)	3	21	Dropped out after 1 year
RI: high (20)	TM: average (14)	UM: average (9)	GA before	GA after	
UE: high (17)	AA: low (10)	SB: high (14)			
II: high(20)	AC: high (19)	FF: high (18)	6,0	7,0	
	ME: high (20)				

Student #6

This student responds to the invitation to talk with the study counsellor because of his bad study results. This student perceives his main problem to be time management, or rather lack thereof. This student spends hardly any time on his studying and the times that he does, his studying is very inefficient.

Diagnosis

His ASSIST scores confirm what he thinks is his biggest problem, he has mostly low scores on the deep approach to learning scales. Only on 'relating ideas' his score is average. On all subscales of the strategic approach, his score is low. On the surface approach to learning his scores are more diverse, ranging from a high score for

'unrelated memorising' and 'syllabus-boundness' to a low score on 'fear of failure'.

Awareness

The discussion of his scores clarifies that he has to put more time and effort into his studying. He needs to make a planning for his studying. Before starting with this planning, the student will keep track of his studying during an average week. He has no idea how much time he spends on studying and does not really know what other activities he spends time on. During the second meeting, the student reports on his time writing efforts. It turns out that he spends several studying session of an hour each, every day. He finds it hard however, to continue for an hour. He has therefore started to set an alarm clock to help him make a full hour each time. The counsellor explains that he should take this time frame as a guide for his planning. There is no point in planning to study for four hours straight, when you are already having trouble studying for an hour.

Intervention

During the meeting the student and the counsellor start to make a planning. In a few weeks time, an exam period starts, so the planning is for his exam preparations. This planning is made by the student and counsellor together as a training. The student is constantly asked to give a reason for the choices he makes in his planning and to consider the consequences. The planning starts by making an overview of the exams ahead and the time available to study. This already creates some insights for him. He then estimates how much time he needs for every exam. Since some are re-exams they might require a different learning strategy. The student and the counsellor discuss possible strategies for dealing with the exams. For instance, an exam that he failed by just one point requires a different preparation than an exam

he failed completely. He did not consider any strategy before the meeting. For the student, preparing for an exam means: learning all the materials of the course as well as you can. The counsellor explains that when learning for a re-exam he might consider focussing mainly on the parts he failed last time. There is no point in learning things one already knows. He feels that with his precise planning and strategies for the re-exams he is able to manage his learning more successfully.

Follow-up

This student graduated in the bachelor program with a delay of two years. Currently, he is studying in a one year MSc program which he started one and a half years ago.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: low (9)	OS: low (6)	LP: average (8)	9	39	BSc currently studying for MSc
RI: average (13)	TM: low (6)	UM: high (11)	GA before	GA after	
UE: low (13)	AA: low (10)	SB: high (17)			
II: low (11)	AC: low (7)	FF: low (9)	6,25	6,5	
	ME: low (12)				

Student #7

This student finds studying rather difficult. She has to put a lot of effort into it; more than she is willing to do. She has been fairly successful in terms of credits, yet she feels that too much time and effort has to be invested.

Diagnosis

Her scores on the scales for the deep approach are mostly low, with the exception of an average score on 'use of evidence'. Her scores on the strategic approach vary from low scores on the 'organised studying', 'achieving' and 'monitoring effectiveness', to average on 'time management' and high on 'alertness to assessment demands'. On the surface approach to learning she scores high on all aspects.

Awareness

During the discussion on her learning it becomes clear that she is very insecure and therefore tries to memorise as much as possible. During lectures she tries to write down as much as she can and then misses a lot of what is being said while writing.

Intervention

She gets the same assignment as student #5, i.e. not writing anything down during a lecture but listen carefully to check for understanding. Afterwards, she can take the hand-outs and add important points to it by memory. Next to this issue she also has trouble identifying main and secondary points when reading a chapter. She also gets the assignment to read titles and paragraph headings before reading everything from start to finish.

Follow-up

This student is still studying in her undergraduate program in business. Furthermore, she started taking courses in a MSc program

in business as well. This indicates that she is nearly finished with her undergraduate program.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: low (12)	OS: low (10)	LP: high (10)	21	45	Still studying in BSc and MSc program
RI: low (10)	TM: average (14)	UM: high (16)	GA before	GA after	
UE: average (15)	AA: high (16)	SB: high (12)			
II: low (12)	AC: low (12)	FF: high (20)	6,25	6,5	
	ME: low (12)				

Student #8

This student is struggling with her studying for one and a half year now. Because of some personal circumstances, she was exempted from the first year requirement, but she has to fulfil this requirement this year. She has obtained her high school diploma in Albania. Although it was deemed equivalent to the Dutch secondary education diploma, she finds that she lacked sufficient pre-university knowledge. Especially computer skills appear to be a problem for her.

Diagnosis

Her scores on the deep approach to learning are mainly high, except for the 'seeking meaning' scale. Her scores on the scales for the strategic approach to learning vary. A low score on 'time management' is combined with a high score on 'organised studying'. On the other scales she has an average score. On the surface

approach she has high scores for all scales. Her ASSIST scores are mainly high for the deep approach to learning, except for the scale 'seeking meaning' where she scores average. On the strategic approach her only high score is for the 'organised studying' scale, the other scales score average ('alertness to assessment demands', 'achieving' and 'monitoring effectiveness') or low ('time management').

Awareness

The first meeting takes place under the constraint of a shortage of time, therefore, the approaches to learning scores were not discussed elaborately. The counsellor and student discuss what she sees as a major problem, namely distinguishing between main and secondary points. She has high scores on all aspects of the surface approach to learning, which indicates that she is very insecure and stressed about her studying. She tries to remember everything, which is almost impossible given the amounts of material she has to learn, causing her even more stress.

Intervention

She is given the assignment to read titles and headings of a chapter before reading it in more detail. Also, during lectures she will stop trying to write everything down. During the second meeting the assignments are discussed. She finds that listening instead of writing during lectures is very useful, although she sometimes cannot resist to write some things down. The new approach for reading new chapters is very useful for her as well.

Awareness

More discussion of her studying approach revealed that she has difficulties in planning her time. She has trouble getting started with studying during the day. Once she has started she has no problem

continuing. She never makes a precise planning. The counsellor and student discuss what type of planning would be optimal for her, given her daily routines. She is rather anxious for the exams that are coming up. She is specifically dreading the multiple-choice exams, which she finds very difficult.

Intervention

She will read chapter 11 on making exams of Payne and Whittaker (2000). During the third meeting the student is more confident. Her exams have gone well, her scores on the multiple-choice exam indicate that she has passed this exam. The chapter on exam strategies has been very helpful for her. This success has been a big motivation for her, she now feels able to meet the requirements of the courses. She is more confident, and this helps her to spend more time on her studying. She feels able to manage her learning herself.

Follow up

This student graduated in the undergraduate program with a delay of one and a half years.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: average (14)	OS: high (16)	LP: high (10)	24	36	BSc
RI: high (14)	TM: low (11)	UM: high (14)	GA	GA	
UE: high (16)	AA: average (15)	SB: high (13)	before	after	
II: high (17)	AC: average (14)	FF: high (17)	7,25	7,25	
	ME: average (16)				

Student #9

This student entered university after having studied at higher professional education. He has a career-oriented motivation for studying business at the university. Until now, he has never experienced any trouble with studying. Currently, he finds himself studying more than ever before, but without adequate results.

Diagnosis

His scores on the scales for the deep approach are mixed, with low scores on 'seeking meaning' and 'interest in ideas', and high scores on 'relating ideas' and 'use of evidence'. For the strategic approach to learning, his scores are low for all scales. For the surface approach to learning however his scores are all high.

Awareness

Because of his recent failing at exams, he is getting stressed. Next to that he is critical of what he learns. He feels that the theoretical approach to business does not reflect the day-to-day reality of doing business. This makes it hard for him to select the main points of a course. He understands the big picture of business, but he has trouble filling this in with more specific concepts and theories. The counsellor and student discuss how he can use his experience and overall knowledge to guide him when learning in more detail for a course. He should see his experience more as an overall framework which he can use as a structuring device for detailed learning.

Intervention

His assignments are to read titles and paragraph headings, linking this to what he already knows and then read the text to fill in the details. Furthermore, for his test anxiety he is referred to a website with information on how to deal with test anxiety.

The assignment on reading text was very useful. It has helped the student to keep the focus on the main issues and ideas. This also had a positive influence on his exam stress. Apparently one elaborate discussion with a few concrete tips seemed to be all it took to get his self-efficacy back.

Follow up

This student abandoned the undergraduate program after two years and switched to an undergraduate program in Law at the same university. He has been enrolled in this program for one year, but never graduated.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: low (13)	OS: low (10)	LP: high (15)	0	6	Switched to
RI: high (19)	TM: low (9)	UM: high (11)	GA	GA	BSc in Law
UE: high (16)	AA: low (11)	SB: high (17)	before	after	and then
II: low (11)	AC: low (9)	FF: high (17)	0	6,5	dropped out
	ME: low (8)				

Student #10

This student has a different educational background than most students. She comes from an international high school in South America. At this school students work a lot on projects and can take their own initiatives in learning. She has a hard time adjusting to the more prescribed and organised manner of the courses at Tilburg University. She has not passed any course and this has caused her to lose all motivation for studying.

Diagnosis

Her scores on the ASSIST confirm her lack of motivation. She has mostly low scores on the scales of the deep approach to learning. Only on the 'seeking meaning' scale she gets an average score. On the strategic approach to learning she scores low on all scales. On the surface approach to learning she scores high on all scales.

Awareness

From the discussion it becomes clear that this student is having a very hard time. She is unable to motivate herself to start studying. She goes to the lectures, although she does not like them. She has a hard time understanding some lecturers because of their heavy accents in English. The amount of reading she has to do as preparation for lectures is too much for her. She is already planning what she will do when she doesn't get the number of credits she needs to continue in the program; She will probably switch to another program.

Intervention

Whatever she chooses to do, her studying behaviour will have to change. The counsellor and the student agree that she will first make a clear weekly planning for herself. She has to start treating her studying as a full-time job and not wonder every day whether or not she will study. Although a new meeting was planned, the student never showed up again.

Follow up

This student is still registered in two undergraduate programs in business. She did not (yet) graduate from either program.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: low (11)	OS: low (7)	LP: high (13)	0	3	Still studying in BSc
RI: low (11)	TM: low (5)	UM: high (13)	GA	GA	
UE: average (14)	AA: low (11)	SB: high (12)	before	after	
II: low (10)	AC: low (8)	FF: high (20)	0	6,0	
	ME: low (11)				

Student #11

This student is not as successful as she wants to be in her studying, despite her hard work. This has caused her to doubt her ability to study at university level.

Diagnosis

Her scores on the ASSIST show her to be a motivated and anxious student. She has high scores on most scales of the deep approach to learning. Only for 'interest in ideas' her score is average. For the strategic approach she has mixed scores. A low score for the 'alertness to assessment demands' scale and an average score for 'organised studying', 'time management' and 'achieving', and a high score for 'monitoring effectiveness'. For the surface approach to learning her scores are mainly high, only for the 'lack of purpose' scale she scores average.

Awareness

This student feels very stressed. She is not satisfied with the number of hours that she puts into her studying, which means that she never relaxes. When she does not study she feels that she should, leading her to get stressed even more.

Intervention

To help solve this problem she has to make a clear planning. She will have to plan when she studies and when she will not. There are re-exams coming up and a strategy to prepare for these exams is discussed. Also some strategies on discerning main and secondary matters are discussed. During the second meeting she is more relaxed. She has taken a break during Easter and feels better. She finds the tips on main and secondary issues very useful and adopts them in all her courses. The second meeting turned into a pep-talk which seemed sufficient for this student.

Follow up

This student has been registered in an undergraduate program in business for three years. She did not graduate.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: high (16)	OS: average (14)	LP: average (8)	6	30	Dropped out after 3 years
RI: high (18)	TM: average (12)	UM: high (13)	GA	GA	
UE: high (17)	AA: low (12)	SB: high (13)	before	after	
II: average (14)	AC: average (15)	FF: high (20)	7,5	6,25	
	ME: high (18)				

Student #12

This student finds it very hard to motivate himself to study. He does not put a lot of time into his studying and now he has failed quite a lot of courses. He is running the risk of not meeting the minimal required number of credits and is looking for tips on how to turn things around.

Diagnosis

He has low scores on most scales of the deep approach to learning, with an average score only on the 'interest in ideas' scale. His scores on the strategic approach are all low. On the surface approach he scores high on all scales, except for the 'fear of failure' scale on which he scores low.

Awareness

This student hardly studies. He feels unable to motivate himself, especially for courses he does not like such as statistics and mathematics. When he has to do things for a group assignment he will put in some effort. He never makes a planning for his studies.

Intervention

His first assignment therefore is to start writing time, to get some insight on how he spends his time. With this information he can start making a planning.

During the second meeting it turns out that he has not been time writing. He thinks that he now spends more time on his studying, even though it still is not much.

Whenever he does study he is easily distracted by phone, housemates or friends on MSN. The student and the counsellor explore what places he is able to concentrate better. He knows that he works

better in the train or the library, but since he lives somewhat away from campus he probably will not go to the library and he is not willing to ride the train for the sole purpose of studying. This leads the discussion back to self-discipline and motivation. The counsellor gives give tips on how to motivate yourself, but the student is unwilling to try these things. He concludes that he has no real incentive yet to study harder. He expects that this incentive to study harder will come to him after he has failed his first year courses and he cannot continue in the program. Until that time, he declares himself unwilling to change.

Follow up

This student switched to another BSc program in business after one year. From this program, he dropped out after two years.

Deep	Strategic	Surface	Credits before	Credits after	Follow-up
SM: low (9)	OS: low (8)	LP: high (15)	21	27	Switched to other BSc and dropped out after two years
RI: low (11)	TM: low (7)	UM: high (11)	GA before	GA after	
UE: low (12)	AA: low (11)	SB: high (14)			
II: average (14)	AC: low (5)	FF: low (7)	6,3	6,0	
	ME: low (14)				

4.4. Results

Analysis of the cases

Case #1 is a student with a low strategic approach to learning who was helped by some concrete tips on organized studying and time management. She graduated in both the BSc and the MSc program.

Case #2 is a student with a very mixed pattern in his approaches to learning with an average to high score on the surface approach to learning. The student stopped with the counselling after the first meeting after which he continued studying for three years before he dropped out.

Case #3 is a student with high scores on the strategic approach and low scores on the surface approach. The scores on the deep approach vary between high and low. A few concrete tips, especially on how to distinguish between main and secondary issues were very helpful to her. She graduated in both BSc and MSc.

Case #4 is a student with low scores on the deep and strategic approaches to learning and high score on the surface approach. The assignments to help her distinguish between main and secondary issues offered no help, she dropped out at the end of the year.

Case #5 is a student with high scores on the deep and average to high scores on the surface approach. Her scores for the strategic approach were very mixed. Assignments aimed to help her focus on the main points and organize her studying did help her somewhat, however this was insufficient to prevent her from having to drop out.

Case #6 is a student with low scores on (most of) the deep and the strategic approach, with mixed scores on the surface approach. Tips on time management and on monitoring the effectiveness of his studying were helpful. The student did not drop out and graduated with a delay of two years.

Case #7 is a student with mostly low scores on the deep approach, average scores on the strategic approach and high scores on the surface approach to

learning. Concrete tips on study strategies such as note taking during lectures and distinguishing between main and secondary issues were somewhat helpful. This student did not drop out, she is likely to graduate with a delay of two years. Case #8 is a student with mostly high scores on both the deep and the surface approach to learning and mixed scores on the strategic approach. She has trouble coping with stress for exams and time management. Some discussion, assignments and background information on exam stress helped this student to improve her results. She did not drop out and graduated in the BSc program within the nominal time.

Case #9 is a student with mixed scores on the deep approach to learning, low scores on the strategic approach and high scores on the surface approach. This student has trouble matching the theoretical concepts with his practical experience. Assignments to focus more on specific content of what he learns instead of on the general practical usability did not help sufficiently. The student switched to another program from which he dropped out.

Case #10 is a student with low scores on both the deep and the strategic approach to learning and high scores on the surface approach. Assignments targeted at self-discipline and time management have helped only slightly. The student did not drop-out and is still studying in the BSc program.

Case #11 is a student with high scores on the deep approach, mixed scores on the strategic approach and high scores on the surface approach. To reduce the high stress levels, the student starts working with assignments on time management. The planning was helpful to reduce the stress, however it did not result in study success, the student dropped out after three years.

Case #12 is a student with low scores on the deep and the strategic approach and mostly high scores on the surface approach. The score on the fear of failure scale however is low. The main problem for this student is lack of motivation. Tips on time management and self-discipline were not useful for him, he switched to another BSc program from which he then dropped out.

Analysis over the cases

As is evident from the case descriptions before, four students graduated from the undergraduate program they were enrolled in at the time of the intervention. Two out of these four continued in a graduate program from which they graduated as well, obtaining a MSc degree.

The two cycle system of undergraduate and graduate programs is relatively new in the Netherlands. Universities used to offer four-year programs leading to an equivalent of a MSc degree; this may explain why students without a clear academic ambition do choose to continue in a graduate program.

The descriptions also show that four students have dropped out, although not all at the end of the academic year during which they received the counselling. Two students are still studying, one in the same program and the other in a different program.

Nine students in this counselling intervention had a high score on fear of failure, the motivational aspect of the surface approach to learning. They were insecure about their ability to cope with the workload and the requirements of the program. Only three students (#4, #6 and #12) scored low on the fear of failure subscale. This finding of mostly high scores on fear of failure is not surprising considering the fact that these students accepted an offer for help with their learning, and thus participated in this study. The students report that having practical assignment to regain control over their studying worked as a boost of confidence, decreasing their fear of failure.

Eight students had low scores on the subscales of the strategic approach to learning. These students were very unorganized in their studying. For instance, they did not gather all the paperwork concerning a specific course and did not know what parts of the course would be assessed. These students did not plan their studying, not even during a period of exams.

Two students did not obtain any credits after participating in the counseling (#2 and #4). One of these students (#4) had a rather extreme combination of approaches to learning, i.e. high scores on all aspects of the surface approach to learning, and low scores on all aspects of the deep and strategic approaches to learning. In case the university would be able to select applicants at the gate; this is the kind of student that very likely would not have been allowed to enroll. The other student had a more diverse pattern, with no clear tendency for any approach to learning. For instance, this student had a high score on 'interest in ideas' combined with low scores on 'alertness to assessment demands' and 'monitoring effectiveness'. Both students had a high score on 'fear of failure'. However, this cannot explain their failure at increasing their performance, since other students (#1 and #6) also scored high on fear of failure but did not drop-out.

The four students that did graduate do not demonstrate similar patterns in their approaches to learning, nor did they get similar interventions. On two scales, three out of four students had similar scores, low for the 'time management' and high for 'syllabus boundness'. The assignments that these students did as part of the intervention were different as well.

Six students had trouble distinguishing main and secondary issues when reading a chapter or attending a lecture. They felt insecure about their own ability to identify the main points and to solve this they attempted to memorize everything. This leads to high levels of stress because the sheer amount of learning material is too much to be memorized. Specific tips on how to identify main issues, as simple as they may seem, can lead to a significant reduction of stress.

Therefore, this test appears to provide initial evidence that supports the claim that this model is a useful, efficient and effective method to help students who are at risk for drop-out. For one, seven students who participated in this study reported that they felt helped, already after one session (personal

communication to the counsellor). The elaborate discussion on the approaches to learning created an awareness of their own control over their learning. In the follow-up meetings, these students expressed that they had regained a sense of control and self-efficacy over their learning. These students felt capable to manage their learning on their own after this counselling.

Furthermore, the model has been presented to a group of study counsellors and other professionals in the field of student guidance (Hooijer, 2005). These practitioners were highly interested in this particular model, since it appears to be the first model that is evidence-based and tested in a real-life setting. Other models available in the literature so far take a rather general approach, that is, generic study skills are obtained, not specifically targeted at the problem or suitable for the specific context (e.g. Sobral, 1997; Zeller, & Leatherman, 1991).

This indicates that the model developed in this chapter appears to suit the needs of students and practitioners. In general, about two and a half hours of time are invested per student (by the counsellor): two hours for meetings with the student, and half an hour for score calculation and report writing. Although this is a substantial amount of time, offering standardized courses in study skills to all students appears to be more time consuming and not as effective.

4.5. Discussion

The model for counselling students at risk with regard to their approach to learning, developed in this paper, appears to be a promising tool for study counsellors. Because this is a pilot study, it is not possible on the basis of the limited quantitative data to determine statistically the success of the intervention model described. The general trend reflected by the performance of the students at risk participating in the counselling is encouraging. Four students did graduate and two students are still studying and are likely to graduate.

This pilot study also indicates that the model offers a promising alternative to the 'educational environment' approach for drop-out prevention. It has proven to enable very personalized advice for students, which is not only efficient, but also likely to be more effective. The focused dialogue between student and counsellor is instrumental in helping students understand why tips and assignments are useful in view of the specific learning problems they are facing. In general around two and a half hours of time are invested per student. Testing the model on a larger scale might offer some opportunities for standardization, possibly leading to a decrease in effort required from the counsellor. However, the test of the model in this chapter suggests that it is the direct and focused face-to-face discussion with the student that creates the necessary awareness for changes to be made.

Limitations

When interpreting the findings of this study, some caution is warranted. As with any study, this study has some limitations. For instance, a second administration of the inventory would have provided more information on the effects of the counselling in terms of approaches to learning. However, because of the nature of the counselling this method would be biased towards favouring the counselling. Since students have been made aware of the conceptual structure of the ASSIST by an elaborate discussion of their scores, students would probably be influenced by this knowledge when filling out the same questionnaire again (e.g. a few months later).

Furthermore, in this study the counselling model was not compared with other interventions targeted at drop-out prevention or study skills improvement. For instance, an alternative approach would be a group training in study skills for students at risk for drop-out, or an integration of recommendations for learning into the regular courses of a program. In order to systematically compare these different approaches to drop-out prevention, a randomized controlled trial

design would be necessary. However, since such a study needs to involve real students with an actual drop-out risk, the practical and ethical problems with such a research design are insurmountable. Given the moral obligation to offer students the best possible services, randomly assigning students that are at risk to different interventions, may imply that some students are denied the best possible service. Furthermore, the numerous factors that can influence a student dropping out can never be matched completely for different groups of students. Thus, a systematic comparison of the counselling model developed here with alternative models is beyond the scope and resources available for this project.

Recommendations for further research

Since the results of this first test of the model are encouraging, further research using this model is recommended. Large scale implementation of this model among study counsellors for undergraduate business students would be a suitable approach for this research. This can provide more insight in the usability of the model for study counsellors as well as more insight in the effectiveness in terms of drop-out prevention.

Further research using this model for counselling can also focus on professionalization of the counsellors using the model. Professional development of study counsellors is a largely neglected issue in higher education. The advice given by counsellors on learning behavior is currently based on common-sense and personal experience of the counsellor as well as on standardized textbooks on study skills. Knowledge of the available theoretical and empirical wisdom on student learning is not systematically developed among study counsellors. Future research should therefore also look at the effects in terms of the professional development of study counsellors.

All in all, the model that has been developed and tested in this design research project offers a promising approach for drop-out prevention. Hopefully,

it will inspire researchers as well as study counsellors and educational policy makers to engage in further research and development.

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Appendix 1. Websites and book used as resources for students

Deep approach

Seeking meaning

<http://fates.cns.muskingum.edu/~cal/database/general/motivation3.html>

Relating ideas

<http://fates.cns.muskingum.edu/~cal/database/general/organization.html> ,
specifically the part on information organization.

Use of evidence

<http://www.ucc.vt.edu/stdysk/proofing.html>

Interest in ideas

<http://fates.cns.muskingum.edu/~cal/database/general/motivation5.html>

Strategic approach

Organised studying

<http://www.ucc.vt.edu/stdysk/control.html>

<http://www.ucc.vt.edu/stdysk/studydis.html>

<http://fates.cns.muskingum.edu/~cal/database/general/organization.html>

Time Management

<http://fates.cns.muskingum.edu/~cal/database/general/time.html>

<http://www.ucc.vt.edu/lynch/TimeManagement.htm>

<http://www.leidenuniv.nl/ics/sz/so/asv/asv2.html>

Payne & Whittaker (2000). Chapter 2. Managing stress and time ¹

Alertness to assessment demands

<http://vsm.cs.utwente.nl/tips/tips-extern.html>

Payne & Whittaker (2000). Part II. Assessment skills

Achieving

¹ Payne, E. & Whittaker, P. (2000). *Developing essential study skills*. Essex, UK: Pearson Education.

Monitoring effectiveness

<http://fates.cns.muskingum.edu/~cal/database/general/monitoring.html>

Surface approach

Lack of purpose

<http://fates.cns.muskingum.edu/~cal/database/general/motivation5.html>

Unrelated memorizing

<http://www.leidenuniv.nl/ics/sz/so/asv/asv4.html> (vooral hoofd- en bijzaken)

Payne & Whittaker (2000). Chapter 5. reading for study

Syllabus-boundness

<http://vsm.cs.utwente.nl/tips.html> (teksten bestuderen)

Payne & Whittaker (2000). Chapter 4. Finding information

Fear of failure

<http://fates.cns.muskingum.edu/~cal/database/general/testanxiety.html>

<http://ub-counseling.buffalo.edu/stressmanagement.shtml>

<http://www.leidenuniv.nl/ics/sz/so/psy0606.html>

5. Learning in business: a general discussion

For many years scholars have studied the learning behaviour of students. The explanation for this interest is partly that learning is a major topic in psychology and pedagogy. In this respect, a better understanding of learning processes contributes to more comprehensive models of individual and collective learning behaviour. More importantly, the interest in learning behaviour is motivated by concerns from practice regarding the effectiveness, efficiency and costs of education – especially in undergraduate education. In this respect, there is a constant urge to lower drop-out numbers and increase the yields of undergraduate programs.

The aim of this dissertation was to make a contribution towards better understanding the learning behaviour of business students. The study started with observations from a study counsellor of business students in Tilburg University. Many freshmen enter university life without a clear idea of their personal goals for learning. They tend to continue automatically from pre-university education into university, choosing one of the programs on offer at the university nearest to their home town. Other students start highly motivated and loose motivation and self-efficacy belief after failing their first round of exams. Study counsellors typically have limited resources to help these students. These observations motivated the studies reported in this dissertation.

The body of knowledge on students' approaches to learning provides the basis for this dissertation. The conventional wisdom arising from previous research is that for students to be successful, a deep approach to learning is necessary. Accordingly, students should be stimulated and urged to adopt this approach as much as possible. In this respect, study counsellors should have the knowledge and instruments to help students to improve their approach to learning. To meet this aim, three studies were presented in this dissertation.

First, the relation between approaches to learning and academic success for undergraduate students in business is studied. Second, the development of approaches to learning and the influence of educational environments on this development is studied. The third study concerns the development of a model for study counsellors who are trying to help students who are at risk for drop-out. In this chapter I critically discuss the results of these studies and discuss some recommendations for further research.

5.1. Main findings and conclusions

Students' approaches to learning constitute the conceptual framework for the studies reported in this dissertation. Specifically, the conceptual framework of approaches to learning as developed by Entwistle and colleagues is used (e.g. Entwistle & Ramsden, 1983; Entwistle & McCune, 2004). In this framework, three approaches to learning are discerned: the deep, surface and strategic approaches to learning. A student adopting a deep approach to learning has an intrinsic interest and seeks personal meaning of what is being learned. The surface approach to learning is an undirected style of learning with rote memorization motivated by a fear of failure. The strategic approach to learning is characterized by an intention to do as well as possible in the course guided by an awareness of assessment criteria combined with a high level of organization. Research in students' approaches to learning has demonstrated that there are many factors related to the approaches to learning a student adopts. Despite these insights, it has remained unclear how students can be stimulated to adopt appropriate approaches to learning. Therefore, the central research question in this dissertation is 'Which approach to learning leads to success for undergraduate students in business and how can students be stimulated to use this approach?' In this dissertation three studies are presented that serve to answer this question.

In *Chapter 2*, a cross-sectional study is reported on the relation between business students' approaches to learning and academic performance. Data were gathered on approaches to learning and on academic performance of three consecutive cohorts of first year undergraduate students in business. The correlations between the different approaches to learning and measures of the quality, efficiency and effectiveness of learning (in terms of grades and credits) were analyzed. These analyses show that there is no correlation between the deep approach to learning and performance in this population, while there is a significant correlation between the strategic approach to learning and academic performance. The surface approach to learning is negatively correlated with performance, yet these correlations are rather weak. These results confirm the hypothesis of this study, namely that for students in business education the strategic approach to learning is linked to academic performance. The strategic approach to learning matches the key competences of business graduates, that is working in a goal- and customer oriented and highly organized manner. Therefore, the main conclusion is that for undergraduate students in business the strategic approach to learning is positively related to academic success and the deep approach is not.

Chapter 3 reports a longitudinal study on the long-term development of approaches to learning and the influence of the educational environment on this development. Three perspectives on the variability of students' approaches to learning are inferred from theory and empirical evidence. The first is the development perspective, which assumes that the deep approach to learning develops with experience. For a student to adopt the deep approach to learning, maturity and experience with learning are expected to be required. The second is the trait perspective, which assumes that approaches to learning are strongly related to, or even part of, one's personality and character and therefore stable over time. The third is the contingency perspective which states that students' approaches to learning are dependent on the educational context. These three

perspectives are tested in a longitudinal study comparing the development of students' approaches to learning in two educational programs in the same discipline. One program has a rather traditional set-up, with lectures, tutorials and final exams. The other is more innovative: in addition to lectures and tutorials, the students work in small groups on real-life assignments. The results show that there is no significant change in students' approaches to learning throughout the years. Furthermore, there are no differences in the development of students' approaches to learning between the two programs. In this respect, students in both programs have relatively high scores on the strategic approach to learning. The results of this study offer support for the trait perspective on approaches to learning, that is approaches to learning are a stable part of individual personality or character. The main conclusions therefore are that students' approaches to learning are stable during a three year undergraduate program and the educational environment does not make a difference for these approaches to learning.

The results presented in Chapter 2 and 3 imply that the strategic approach to learning is related to success for undergraduate business students, and that students' approaches to learning are stable over time and not influenced by the educational environment. This leads to the question of how these approaches to learning can be influenced. Therefore, *Chapter 4* presents a design based research of the development and testing of a model for student counselling to prevent drop-out. Students' drop-out is still a problem in higher education, with an average of 30% drop-out in most member countries of the Organisation for Economic Cooperation and Development (OECD, 2008). The development of easy-to-use and efficient methods to prevent student drop-out is therefore highly relevant. The model presented in this study emphasizes the importance of diagnosing the main problems in the learning behaviour of the incumbent student and on making this student aware of these problems. This enables a highly individualized approach and tailor-made interventions. A total of

twelve students, who were at risk for drop-out, were counselled according to the model. The results of this first test are encouraging and indicate that individual counselling can lead to positive effects in a short period of time with a limited time investment. The main conclusion of this study is that individual counselling of students (at risk), aimed at their approaches to learning, can prevent student drop-out.

Concluding, contrary to what is generally accepted, I find that the deep approach to learning is not related to academic performance for undergraduate students in business. However, the strategic approach to learning is consistently related to academic performance. Furthermore, methods to influence students approaches to learning should be sought in the field of individual counselling and not in the educational environment, which currently is the preferred method among educational researchers.

5.2. Implications

Theoretical implications

Although the studies reported in this dissertation have some limitations, the results give reason for reconsidering some fundamental aspects of the research tradition in students' approaches to learning. For one, the undisputed superiority of the deep approach to learning and its status as a primary goal in higher education should be reassessed. Not only is the deep approach uncorrelated with academic performance in undergraduate programs in business, it might also be an approach to learning that is less appropriate for the professional career that most students pursue after graduation. Given the current pressure on both universities and students to be efficient and effective in terms of throughput and output, the learning behaviour that correlates to grades and credits should at least be acknowledged. Another implication may be that the role of the academic discipline might be more profound than acknowledged so far. The

specific knowledge structures and the way new knowledge is developed in a particular discipline can have an important influence on the type of learning that is appropriate for that discipline.

Practical implications

Given the theoretical implications previously discussed, the conclusions of this dissertation also have implications for practitioners in higher education. The prevailing methods that both researchers and practitioners frequently use for influencing approaches to learning involve redesigning and renewing the educational environment. This method should be reconsidered. The (perception of) the educational environment is indeed related to the approach to learning a student takes, however, changing this environment does not appear to lead to changes in approaches to learning (e.g. Vermetten, Vermunt, & Lodewijks, 2002; Struyven, Dochy, Janssens, & Gielen, 2006; Nijhuis, Segers, & Gijssels, 2005). I do not argue here that innovations in the educational environment are no longer needed, on the contrary, these can lead to significant increases in educational quality. However, the argument that these changes will lead students to adopt a deep approach to learning does not appear to be valid, given the body of evidence obtained in several previous studies as well as this dissertation. Changing approaches to learning by means of targeted individual intervention is likely to be a more efficient and successful approach. Although changing the educational environment may lead to substantial improvements in student learning (i.e. in dimensions not measured in this dissertation), individual differences between students in their approaches to learning are likely to exist in every educational environment at the undergraduate level. This implies that there will always be students with less appropriate approaches to learning. Therefore, the drop-out problem can be tackled more efficiently and effectively by focussing on those students who evidently have adopted inappropriate approaches to learning for the specific program they are enrolled in.

Practitioners should therefore focus their attention on the individual student and on measures that are flexible enough to enable more individualized help.

Limitations

The studies in this dissertation have some limitations. All empirical studies were conducted among undergraduate students in business at one particular university in the Netherlands. This means the results might not be applicable to undergraduate students in business at other universities. Moreover, these studies were done at a time when bachelor and master programs were only recently introduced in the Netherlands (previously all programs were undivided). Therefore, the undergraduate programs were relatively new, which may have created a sense of ambiguity and uncertainty to which students responded by sticking to the learning behaviours that seemed to have worked well in their pre-university education.

Another limitation arises from the ways in which approaches to learning respectively academic performance were measured. The ASSIST questionnaire tool that this dissertation draws on to measure approaches to learning may not cover all key dimensions of the learning approaches adopted by students. In this respect, the ASSIST tool provides a number of quantitative measurements based on previous studies, whereas an additional qualitative approach (e.g. in-depth interviews) could have served to identify unknown aspects of learning behaviour in the population of business students studied in this dissertation. Similarly, the measurement of academic performance in this dissertation draws on data that are readily available (e.g. credits and grades), but which do not fully represent the broad array of learning outcomes that may be obtained at the undergraduate level.

Finally, as mentioned earlier, the model for counselling has only been tested on a small scale. Further testing of this counselling model is therefore

required before strong conclusions can be drawn on the usability and effectiveness of the model.

5.3. Suggestions for further research

Students' approaches to learning are a useful framework for research and intervention in student learning. Many factors are relevant to these approaches, but correlations do not automatically mean that the incumbent factor can be used as a mechanism for change.

The disciplinary context

First, further research into the influence of academic discipline on the correlation between approaches to learning and academic performance is recommended. The results presented in Chapter 2 call for renewed attention for the fundamental issue of approaches to learning and academic performance. A discipline, and especially its knowledge and reasoning characteristics, might influence the appropriateness of approaches to learning. Before experiments are designed to increase the deep approach to learning, it is worthwhile to assess which approach to learning is most suitable given the specific discipline that students are learning .

Moreover, when studying approaches to learning of students in different disciplines, it may be interesting to analyze the causality in the correlation between approaches to learning and academic performance. As such, a specific discipline may call for a particular approach to learning, however, it also is not unlikely that certain disciplines attract certain types of learners. The observed dominant approach (e.g. the strategic approach to learning) might then not be a consequence of the educational environment in that discipline but a self-selecting mechanism.

Approaches to learning of individual students

Researchers in the field of student approaches to learning should direct their focus towards the individual student. Attempts to influence student learning behaviour through general factors such as educational environments and assessment strategies have proven to be largely ineffective. Focussing attention and energy on those students who are in need of changes in their learning approaches, for example in view of insufficient exam results, may be more efficient and effective. In this respect, the preliminary research results described in this dissertation offer support for a more individualized approach towards student drop-out prevention.

Counselling and guidance

The model for individual counselling is a promising method to prevent student drop-out. Therefore, it requires further research on usability, effectiveness and efficiency. Large scale testing of this model over a longer period will enable a more thorough analysis of the effects of the counselling intervention on student drop-out. Follow-up measures on approaches to learning would be informative as well. In this respect, to prevent the possible bias discussed in Chapter 4, two parallel versions of the ASSIST should be developed.

Counselling and guidance for students who encounter problems in their learning is now largely based on a rather general knowledge of learning principles as well as common-sense of the counsellors. The call for a more individualized strategy for improving students' approaches to learning implies that counsellors and mentors should develop more robust knowledge in this field. On the other hand, research should also deliver more knowledge that is relevant to, and can be used by, educational practitioners. If researchers want to contribute to improvements in education and learning, theoretical knowledge needs to be translated into models and interventions that can be tested in real-

life educational settings. Only then the true added value of the approaches to learning, that have been studied for decades, can be shown.

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Summary

Three approaches to learning are distinguished in the learning literature: a surface, deep and strategic approach to learning. The surface approach to learning is characterized as undirected rote learning, motivated by a fear of failure. The deep approach to learning is characterized as interested learning, seeking personal meaning in what is being learned, and stems from an intrinsic motivation. The strategic approach to learning is described as organized studying guided by an awareness of learning in context, with the intention to do as well as possible in the course. Although the deep approach to learning is preferred and stimulated by many educational researchers, the empirical evidence that this approach leads to the best results in every context in higher education is contradictory. The key research question in this dissertation is; What approach to learning leads to success for undergraduate students in business and how can students be stimulated to use this approach?

The dissertation starts with a cross-sectional study among three consecutive cohorts of first-year students. The correlation between approaches to learning and study success of these students is analyzed. Approaches to learning are measured by means of the ASSIST questionnaire developed by Entwistle. Study success is measured in terms of the grades and credits for all first-time exams during one academic year. The analysis of the data reveals a significant positive relationship between the strategic approach to learning and study success and significant negative relations between the surface approach to learning and study success. No correlation is found between the deep approach to learning and study success. This is inconsistent with the broadly accepted idea that the deep approach to learning leads to the best study results. Reasons for this deviation are likely to be the specific disciplinary context of business.

Secondly, a longitudinal study on the variability of learning strategies is reported. Many educational experiments are based on the premise that students' approaches to learning can be changed by changing the learning environment. These experiments frequently yield opposite results, i.e. students increase the surface approach to learning in response to the educational changes. At this point there is no clear evidence for either variability or stability of approaches to learning, or for the mechanisms to change approaches to learning. Three perspectives on this issue are proposed: a personality trait perspective, a development perspective, and a contingency perspective. These perspectives are tested with a longitudinal study on the development of approaches to learning in two different educational environments. Analysis of the data implies that approaches to learning are rather stable over time, in line with what the trait perspective implies.

Thirdly, a design-oriented study is conducted to develop a model that can be used in practice by student counsellors. This model serves as a guide for student counsellors to help students who are at risk for drop-out. It provides a framework to help students change their approaches to learning in order to improve their study results. Twelve cases are presented and analyzed with a specific focus on the design of the model. The effects of the counselling on the students' study performance are analyzed. Finally, recommendations for the application of this model are given.

Overall, this dissertation sheds light on the approaches to learning of students in business-related programs at the undergraduate level. One major finding is that the results of previous studies of student learning in other disciplines do not appear to apply to the discipline of business. In addition, the results give reason to claim that improving student learning (in undergraduate programs in business studies) should not be done by way of expensive redesigns of curriculum content and teaching methods. Instead, targeted interventions at

the level of underperforming individual students seem to be more effective and efficient.

Curriculum Vitae

Janneke Hooijer was born on September 28, 1976 in Hardenberg, The Netherlands. She received secondary education at the Willem Lodewijk Gymnasium in Groningen. Afterwards she started studying Health Science in 1994 and Psychology in 1998 at Maastricht University. She graduated in Health Science, with a specialization in Mental Health in 1999 and in Psychology, with a specialization in Educational Psychology in 2000. She started her PhD project when she worked as a study counsellor at the Faculty of Economics and Business Administration of Tilburg University. She continued her professional career as a consultant for educational innovation at Fontys Hogescholen followed by a position as research coordinator at the Centre for Brain and Learning of Maastricht University. Since December 2008 she works for the Open University at the Ruud de Moor Centrum, an academic expertise centre on teacher professionalization.