

Learning Diversity in Higher Education: A Comparative Study of Motivational and Learning Styles between Asian International and Dutch Students

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Abstract: This investigation explored differences in motivational and learning preferences between Asian international students and local Dutch students. Statistically significant differences in three scales were found and explained – motivational, cognitive and learning strategies and resource management. The findings draw attention to dimensions of learning diversity that may be present in Dutch tertiary classrooms, and could have implications for individual students, teaching staff and management of the international student body.

Keywords: Learning diversity, Learning Style, Motivation, Learning Strategies, Asian international

1. Introduction and research questions

The international dimension of higher education is receiving attention from multiple perspectives (OECD, 2003). From the perspective of institutions, foreign enrollments may bring constraints as well as benefits. With the widespread of international mobility of the student population, we could basically assume that the benefit to the host institutions may greatly outweigh constraints. In the following part, several common characteristics among the foreign student body in the Netherlands will be discussed and analyzed. The basic features include the dramatic increase in student number, specialization in advanced research or college studies and the assumed out-performance in academic achievement.

There exist only a limited number of researches into the cause of the out-performance of Asian background students, but some major variables such as quality of classroom instruction, family structure, ethnic difference, and socialization practice have already been identified as indices of academic performance. Researchers still do not agree on the specific causes for the differential academic achievement. An alternative in explaining the differential academic achievement is from the perspective of learning styles.

Advances in theoretical conceptions of cognition and motivation endowed us different perspectives in thinking about college education. Transactions of goals of higher education from heavily emphasis on knowledge communication to foster adaptive and life-long learners, promoted studies into the conceptual structures within which facts and principles are organized. When regarding individual learners as dynamic life-long learning units, learning and instruction of learning styles and strategies including motivations and resource management became more conspicuous in Higher education.

Directed by the motivation and learning style theories of Pintrich and colleagues, this study, therefore, would focus on investigating two dimensions of student learning by applying the Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich & Smith, 1993). More specifically the study focuses on motivation including value (intrinsic and extrinsic goal orientation), and affect (test anxiety), learning strategy and cognitive strategies (rehearsal, elaboration, organization and critical thinking), and resource management strategies (time management, peer learning and help-seeking).

Similar with the research assumptions of Pintrich, the basic assumptions of this study are that individual learners are well aware of how they process information to make sense out of the world, and their internal constructs maintain, to some extent, consistency and stability over time; Learning styles are accurate reflections of different individual perceptions, which could be assessed through self-report measures.

The study was to investigate and compare the learning style and behaviours of Asian international and local Dutch students. The research questions directing the research are:

- Are Asian international and local Dutch students significantly different in their learning behaviours?
- If so, what are the most conspicuous learning characteristics each group of student process.

Owing to the nature of these research questions, the approach of this study is mainly quantitative with some qualitative features.

The next section: theoretical background and literature review aims at developing a theoretical framework on which the whole study is based. In addition, initial answers of the research question would be provided in this part.

2. Theoretical background

2.1. Learning style theory

The failure of explaining individual differences in learning from the perspective of ability, personality and intelligence among psychologists designated another field of research – the field of style or construct. Earlier research on cognitive and learning style basically assume that these two concepts are synonymies, but cognitive style is more preferable in scientific research. The question is, however, whether cognitive style is actually learning style?

Based on the general cognitive information-processing theory, one of the most widely applied learning theories, researchers combined various variables related to academic performance into a style construct. These variables include student entry characteristics, task characteristics, instructional methods, student motivation and student cognition etc. Cognitive style, as one of the most important elements in the student entry characteristics, was then defined as information-processing regularities related to underlying personality traits (Messick, 1984). This concept, to some extent, overlapped with the individual difference in intellectual and personality traits.

Learning style research distinguishes itself from cognitive style with three basic features: 1) more interest on instruction adjustment issues according to individual differences; 2) the development of new concepts of learning style; 3) and the formation of basic instruments for measuring the difference. Accordingly, the independence of learning style theory also accelerated the maturation of learning theory. Later on, numerous studies contributed to learning style emerging from the late 1970's.

Represented by Kolb's experiential learning style in 1976 and 1984 and Biggs' studies in 1978 and 1985, was the process-based models of learning style. By identifying different types of learning based on the learning cycle, Kolb developed his Learning style inventory, a nine-item self-reporting questionnaire. The motivation-strategy dimension in which Biggs was interested was an extension of the work of earlier cognitive style research. Biggs identified

surface and deep processing information activities, and include also motivation factors such as intrinsic, extrinsic and achievement orientation.

Another model of learning style worth noticing is the preference-based Model of Learning of Dunn and colleagues, 1989. They identified 21 learning elements, most of which are from external conditions, such as environmental stimulus (light, sound, temperature, design); emotional stimulus (structure, persistence, motivation, responsibilities); physical stimulus (perceptual strengths, including auditory, visual, tactile etc.). The Learning Style Inventory for assessment comprises a 140-item self-reporting questionnaire. Dunn and colleagues developed their study aiming at the primary and secondary age-range, and it was widely applied in the later studies on primary education.

Contradiction among researchers in terms of basic assumptions on the nature of learning style was noticed. On the one hand, some researchers assumed the static feature of learning style, that learning styles are stable and measurable individual “traits” like personality and mental ability. On the other hand, some other researchers assumed the dynamic feature of learning style, by indicating that learning style can be altered under proper guidance in order to help students with achieving better academic performance. Despite differences in assumptions and focus in the learning style research, the general aim and methodology bear lots of similarities. Learning style research is mainly aimed to explain the differential academic achievement that may be influenced by learning processes and cognitive abilities. In terms of methodology researchers generally applied self-reporting instruments when assessing learning style.

Apart from the traditions in learning style research, the changing educational goals brought the field of learning style research into a new and broader era. The new trends show that awareness of individual learning style and effective utilization of learning and cognitive strategies were accepted as “instruments” to facilitate learning in every learning environment.

2.2. Motivation theory

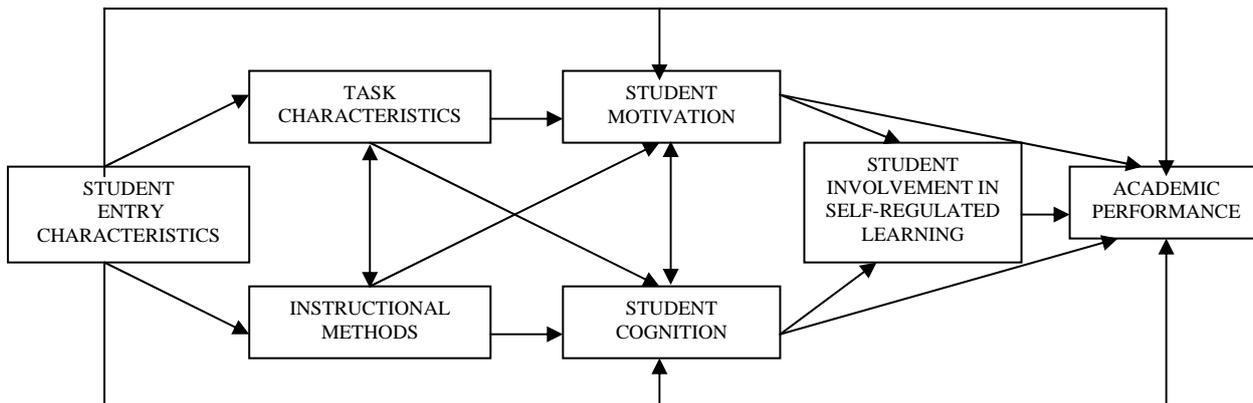
The focus on the learning style theories brings us to the second theme, involving the role of student motivation in learning. The concept of motivation stands at the center of educational enterprise (Covington, 2000). A substantial body of research has provided us with different pictures about motivation. A complete overview in the field of motivation is beyond the scope of this article. Instead certain theories with representative features are selected as the core concept directing this study would be discussed in the following part.

The most recent embodiment of the motive-as-goals tradition is achievement goal theory. The basic contention of achievement goal theory is that depending on their subjective purpose, achievement goals differentially influence school achievement via variations in the quality of cognitive self-regulation processes (Covington, 2000). As a consequence, students’ achievement goals are thought to be one key element that may influence the learning process including the application of cognitive strategies, time management and academic achievement.

Apart from the traditional researches that focus on achievement motivation, intrinsic motivation and goal orientation, there is another alternative perspective – situated motivation. By naming “situated motivation”, researchers emphasize the dynamic features of motivation. Motivational beliefs therefore, are defined as the thoughts, feelings, and actions of students in specific contexts (Pairs & Turner, 1994). Pairs & Turner identified four basic characteristics

of student’s personal motivation in different situations: first, motivation is a consequence of the cognitive assessment that individuals provide in a situation; second, motivational beliefs are constructed, which means that they are open to distortion by virtue of age, bias, and defensive interpretation; third, motivation is necessarily contextualized because individuals create unique cognitive interpretations of events, goals, and probabilities in different situations; fourth, situated motivational beliefs are necessarily unstable (Pairs & Turner, 1994). Directed by the theories of situated motivation, a considerable amount of researches are devoted to the effects of teaching practice in classroom activities.

2.3. Theory of Pintrich and colleagues



Based on the general model of cognitive information processing and social cognitive approach to teaching and learning, Mckeachie and Pintrich developed their conceptual framework on the teaching and learning in college classrooms. A series of studies were conducted at the University of Michigan as the empirical support of their earlier mentioned hypothesis on self-regulated learning. The theoretical framework differs from the previous perspectives on developmental or personality models of student learning in explaining difference in academic achievement. Pintrich and colleagues tend to focus on students’ application of cognitive and self-regulatory strategies as an enabler for their learning goals.

2.3.1. Learning Strategies

Pintrich and colleagues developed their concept of learning strategies inheriting Meinstein and Mayer’s macro level perspective on learning strategies. The macro level perspective of Meinstein defined that learning strategies are thoughts and behaviours that a learner is engaged in during learning and that influence the encoding process (Mckeachie, Pintrich, Lin, Smith & Sharma, 1990). Three categories of strategies are developed: 1) cognitive strategies; 2) metacognitive strategies to control cognition, and 3) resource management strategies. For the reason that cognition is assumed to be task specific, two types of learning tasks, basic tasks as well as complex tasks, are also distinguished, which are broad enough to encompass almost all the cognitive process (see Figure 2.2).

The first type of cognitive strategy is **basic rehearsal strategies** involving recitation of items to be learned or saying words aloud as one reads a piece of text (Pintrich, 1999). This strategy is crucial when the learners are encoding subject matter in the working memory. The other type of strategy is **elaboration strategies** that help students with transferring and storing information into long-term memory. The best example of the application of elaboration strategy such as keyword method is in the language learning process, which involves the building of two types of links between the foreign words and its local counterpart. The third type of cognitive strategy is a catalogue of deeper processing strategies,

organizational strategies. These strategies can help the learner in a broader perspective with selecting proper information for making connections among the information to be learned. Clustering is the most common organizational strategy, which involves the learner's active participation in the simple grouping process of the learning task. Pintrich and colleagues also emphasises the strategy of networking, resembling the schemata in memory, which helps students identify the connections among the ideas.

Table 2.2: *Taxonomies for the learning strategies* (Source: Mckeachie, Pintrich, Lin, Smith & Sharma, 1990).

I. Cognitive strategies	Basic tasks (e.g., memory lists)	Complex Tasks (e.g., test learning)
A. Rehearsal strategies	Reciting list	Shadowing Copy material Verbatim note taking
B. Elaboration Strategies	Key work methods Imagery Method of loci	Paraphrasing Summarizing Creating analogies
C. Organizational Strategies	Clustering Mnemonics	Selecting main idea Outlining Networking Diagramming
II. Metacognitive Strategies	All Tasks	
A. Planning Strategies	Selecting goals Skimming Generating questions	
B. Monitoring Strategies	Self-testing Attention-focus Test-taking strategies	
C. Regulating Strategies	Adjusting reading rate Re-reading Reviewing Test-taking strategies	
III. Resource Management Strategies		
A. Time Management	Scheduling Goal setting	
B. Study Environment Management	Defined area Quiet area Organized area	
C. Effort Management	Attributions to effort Mood Self-talk Persistence Self-reinforcement	

D. Support of Others	Seeking help from teacher Seeking help from peers Peer/group learning Tutoring	
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The next scale within the cognitive and learning strategies is **critical thinking**. Two aspects within this scale are worth mentioning, “transfer of learning” and “problem solving”. Pintrich and colleagues identified three elements of teaching that could help with enhancing critical thinking: (1) students discussion; (2) explicit emphasis on problem-solving procedures and methods; and (3) verbalization of methods and strategies to encourage development of metacognition (Mckeachie, Pintrich, Lin, Smith & Sharma, 1990). Although many researchers are working on the development of effective tools for assessing critical thinking, there is still a lack of a comprehensive methodology of evaluation. Therefore, Pintrich and colleagues utilized a combination of measures.

According to Pintrich and colleagues besides cognitive strategies, metacognitive and self-regulatory strategies can have important influences on students’ achievement. Self-regulation would then refer to students’ monitoring, controlling, and regulating their own cognitive activities and actual behaviour. In the research of Pintrich and colleagues at the University of Michigan, the focus has been on strategies that individuals use to plan, monitor, and regulate their cognition, not their metacognitive knowledge (Pintrich, 1999). **Planning** activities that have been investigated in various studies of students’ learning include setting goals for studying, skimming a text before reading, generating questions before reading and doing a task analysis of the problem. **Monitoring** of one’s thinking and academic behavior is an essential aspect of self-regulated learning (Pintrich, 1999). Monitoring strategies such as attention-focus and self-testing could remind the learner that attention and comprehension can be facilitated using self-regulation strategies. Finally: **self-regulation strategies**, the most important component in the self-regulated learning. When talking about self-regulated learning, Pintrich and colleagues defined it as the strategies that students use to regulate their cognition (i.e., use of various cognitive and metacognitive strategies) as well as the use of resource management strategies that students use to control their learning (Pintrich, 1999). Self-regulated strategies are closely related to monitoring activities, for example: the most common self-regulated behavior in college learning is reviewing learning materials, which could help the learner with correcting and checking their learning performance on a specific task. Therefore, they are needed when the learner is beyond the “track” of the original set goal. All these strategies are assumed to improve learning by helping students correct their studying behavior and repair deficits in their understanding.

The last component in their model of learning and self-regulatory strategies is resource management strategies, which concentrate on the proper strategies students use to manage and control the learning environment. These resources included are both external and internal factors in the learning environment. External factors are, for example, the time available for studying, the actual study environment, help and influence of others (teachers and peers). Internal factors are factors such as effort, mood and persistence management. All these strategies are supposed to facilitate learning, since they could help the students with the process of adaptation to the changing learning environment. There are basically four types of resource management strategies identified by Pintrich and colleagues: time management, study environment, support of others and self-management strategies.

Among the four resource management strategies, **time management** stands at the very front place, since it involves self-regulating activities on the overall learning practice. These self-regulated activities include scheduling, planning and regulation of time on various scales from weekly, monthly, semester and even yearly. At the micro level, it also refers to the time management while actually studying, such as how to use the two hours for one course efficiently. Time management is also closely related to the goal orientation and study efficiency of individual students.

The second resource worth mentioning is the **study environment**. Pintrich and colleagues described the ideal study environment from two dimensions: physical nature and emotion. The physical nature of the study environment refers to the defined area for studying, and it can be a variety of settings (e.g., library, dormitory, individual room or kitchen table).

The third aspect of external resource management in learning is from human resource. **Support from others** is the aspect of resource management related to the knowledge of when and where to seek help from peers and teachers. Positive correlations are found in ample amount of studies showing that peer help or help tutoring could facilitate student achievement.

The last resource management strategy is students' general **self-management** in terms of effort, mood, self-talk and self-reinforcement. Pintrich and colleagues regard a good student as the one who knows when to increase efforts and persist on the task as well as when maximal effort is not required for success (McKeachie, Pintrich, Lin, Smith & Sharma, 1990). According to Pintrich, effort management may be the most important learning strategy, since it could encompass cognitive, motivational, and resource management strategies into a model of self-regulated learning pattern. In the next section, the motivation theories Pintrich and colleagues developed and applied in their researches would be discussed.

2.3.2. Student Motivation

Motivation, according to the view of Pintrich and colleagues, is an academic enabler for school success. Contrary to traditional qualitative views on motivation, Pintrich and colleagues assume that motivation is a dynamic, multifaceted phenomenon. At the same time, they also assume that motivation is not a stable trait of an individual, but is more situated, contextual and domain-specific. The third assumption concerns the central role of cognition in social cognition models of motivation. That is, student's own thoughts about their motivation and learning play a key role in mediating their engagement and subsequent achievement (Linnenbrink & Pintrich, 2002).

Following the above-mentioned three assumptions, social-cognitive motivational theorists have proposed a large number of motivational constructs that may facilitate or constrain student achievement and learning. Among all the components, the four key components of students' motivation, according to Pintrich, include self-efficacy, attributions, intrinsic motivation, and achievement goals (Linnenbrink & Pintrich, 2002).

In summary, there are three types of motivational beliefs identified in the empirical research of Pintrich and colleagues: 1) self-efficacy beliefs (that is, judgments of one's capabilities to do the academic task); 2) task value beliefs (that is, beliefs about the importance of, interest in, and value of the task) and 3) goal orientations (that is, whether the focus is on mastery and learning of the task, grades or extrinsic reasons for doing the tasks, or relative ability in relation to social comparisons with other students) (Pintrich, 1999). Last but not least, another motivational component worth mentioning is test-anxiety and affect.

The component of **test-anxiety and affect** in Pintrich's model of learning component is placed near the perceived-competence construct, by indicating the close relationship between them. A negative relationship between text-anxiety and academic performance is tested and supported by previous researches of Pintrich and colleagues.

3. Methodology

The Asian international student group consisted of 45 students enrolled in Master Courses at the University of Groningen in the Netherlands in 2003/2004. There are 18 students from the faculty of Psychology, Education and Social Sciences (PPSW) and 27 from the faculty of Law. The group includes students from China, Indonesia and Japan, enrolled in the International Masters' programs in Education and Business and Economic Law. This Asian international group was assumed to represent the overall feature of the Asian-background student body in the field of arts from the University of Groningen. To eliminate the possible influence of foreign learning experience on their learning behaviours, students were asked to fill in the information about their background information. The basic aim of the background section in the questionnaire was to see if they are "new comers" – learners with no prior exposure to studying outside their native country. Supplementary questions such as gender, nationality and self-ranking on academic performance were also provided in the background section for further analysis.

The Dutch students sample consisted of 33 students from the same university. There are 19 students from the faculty of PPSW and 14 from the faculty of Law. They were in their last year of the doctoral stage, which is comparable with the international Masters' study. They are also majoring in the field of Arts: Education and Law. The basic criteria for the selection was that all the Dutch students come from the Netherlands born background, or if born overseas, were born from countries with a western education system.

3.1 Data Collection

Owing to the different situations between the two groups of students by the time of the research, the methods of the delivering the questionnaire are also different between the two faculties. In the faculty of PPSW, invitation to participating into the research to the international Masters' students took the form of email, because there was no formal lecture when they could gather together at the time of the research. All the 18 students responded to the questionnaire. As for the local Dutch students, the questionnaires were delivered with the help of their tutors at the time of their meetings, and 19 students filled in the questionnaires. For the students from the faculty of Law, the questionnaires were delivered at the time of their lectures in the form of paper-based test. Among all the 39 students who are expected to be in the target group, 37 of them filled in the questionnaires, with 2 missing cases.

Besides the differences of methods of delivering the questionnaires, two differences in the characteristics of the students in the different faculties examined were also noticed. The first difference is that the Dutch students from the faculty of Law are not from the same major as their international counterpart. Some of them are not majoring in the Economic and business Law, but Civil Law. The students from the faculty of PPSW are all – both the Dutch and the international students – majoring in Education. The second difference is that the ways of having lectures are also different for the students in the faculty of Law, according to the same instructor. The international Masters' students in the faculty of Law took the lectures in the traditional form, while their Dutch counterparts had their lectures in the form of seminar discussion. However, the first concern on the major was then ignored, since both majors in

the faculty of Law could be categorized into the field of Arts, which made the two groups more comparable. At the same time, because the focus of this research emphasises more on individual learning style rather than learning strategies for one specific course, the second distracter on method of teaching could also be eliminated.

In the following part, a description of the instrument applied in this study will be provided, including the nature, internal consistency, reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ).

3.2 Instruments

The instrument applied in this research was The Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich and colleagues. The instrument is designed to administrators during the lectures, and takes approximately 20-30 minutes to complete. There are essentially two sections of the MSLQ: the motivation section, and a learning strategies section. The 81 items on this version are scored on a 7-point scale, from 1 (not at all true of me) to 7 (very true of me). The motivation section consists of 31 items that assesses students' goals and value beliefs for a course, their beliefs about their skills to succeed in a course, and their anxiety about test in a course. The learning strategy section includes 50 questions: 31 items regarding students' use of different cognitive and metacognitive strategies and 19 items concerning student management of different learning resources.

Scale scores are constructed by taking the mean of the items that make up that scale. For example, test anxiety consisted of four items. An individual's score for test anxiety would be computed by sum the four items and take the average score. Negative worded items should be revised before the individual score was computed. Apart from the nature of the instrument, the issue of the reliability and predictive validity of the MSLQ should also be considered.

The MSLQ is well established and had been applied in various studies into learning and motivation. Pintrich and colleagues also tested the reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ), showing a relatively good reliability in terms of internal consistency. The instrument seems to represent a useful, reliable and valid means for assessing college students' motivation and use of learning strategies (Pintrich & Smith, 1993). Table 3.1 demonstrates the coefficient of the items in each scale.

Table 3.1 Coefficient Alphas and Items Comprising the Fifteen MSLQ Scales (Source: Garcia & Pintrich, 1996)

Scale	Total number of Items	Items Comprising the Scale	Alpha
<u>Part A. Motivation Scales</u>			
1. Value Components			
a) Intrinsic Goal Orientation	4	1, 16, 22, 24	.74
b) Extrinsic Goal Orientation	4	7, 11, 13, 30	.62
c) Task Value	6	4, 10, 17, 23, 26, 27	.90
2. Expectancy Components			
a) Control Learning Beliefs	4	2, 9, 18, 25	.68

b) Self-efficacy for learning & Performance	8	5, 6, 12, 15, 20, 21, 29, 31	.93
3. Test-anxiety	5	3, 8, 14, 19, 28	.80
<u>Part B. Learning Strategies Scales</u>			
1. Cognitive Strategies			
a) Rehearsal	4	39, 46, 59, 72	.69
b) Elaboration	6	53, 62, 64, 67, 69, 81	.75
c) Organization	4	32, 42, 49, 63	.64
d) Critical Thinking	5	38, 47, 51, 66, 71	.80
e) Metacognitive Self-regulation	12	33, 36, 41, 44, 54, 55, 56, 57, 61, 76, 78, 79	.79
2. Resource Management Strategies			
a) Time & Study Environment Management	8	35, 43, 52, 65, 70, 73, 77, 80	.76
b) Effort Regulation	4	37, 48, 60, 74	.69
c) Peer Learning	3	34, 45, 50	.76
d) Help-seeking	4	40, 58, 68, 75	.52

From table 3.1, we could see good internal consistency in the motivation scales, especially for the students' self-efficacy for learning (average .93), task value belief (average .90), test-anxiety (average .80) and intrinsic goal orientation (average .74). Extrinsic goal orientation and control of learning beliefs, with coefficient α of .62 and .68 showed that students tend to have more varieties in these two scales. As for the learning strategies scales, critical thinking and metacognitive self-regulation showed higher coefficients (.80 and .79 separately) than the rehearsal and organization strategies (.69 and .64 separately). Among the four subscales in resource management scales, time and study environment management and effort regulation ranked highest with the coefficients of .79 and .76, the last subscale – help-seeking, has the lowest alpha (below .60). This scale asks students about seeking help from peers and instructors, and it may be that students tend to seek help from only one of the resources, or they may also try to seek help from other new resources such as Internet. Taken together, the confirmatory factor analyses discussed above and alphas of each of the fifteen scales suggest that the general model of motivational components with six scales and cognitive components with nine scales was reasonable represented in the data (Garcia & Pintrich, 1996).

For establishing the predictive validity of the instrument, Pintrich and colleagues also examined the relations between the MSLQ scales and standardized final course grades (see Table 3.2). By applying the standardized course grade the third variable problem, which is possibly brought by the instructors grading difference was eliminated.

It was shown that except the subscale of Extrinsic Goal Orientation (correlation .02), all motivational subscales are significantly correlated with standardized final grades (with a sample size of 380, correlations of .13 and above are at .05 significant). The correlations were

in the expected direction, pointing to the validity of the scales. Students who approach their course work with an intrinsic goal for learning, who believe that the material was interesting and important, who had high self-efficacy beliefs for accomplishing the tasks, and who rated themselves as in control of their learning were more likely to do well in terms of course grade. At the same time, students who reported being anxious about tests overall were less likely to do well in the course (Pintrich & Smith, 1993).

It can be noticed from the table above that most of the learning strategy scales are correlated with course grades. Students, who understand how to regulate their learning activities, take a good control over their efforts, apply proper elaboration strategies in their learning process, and could management their own study and time environment effectively were more likely to achieve higher grades in the course. It is also surprising to notice, that peer learning and help-seeking were not significantly related to course grades. Based on the analysis about the internal consistency and reliability, as well as predictive validity of the MSLQ, it seems that the instrument applied is a useful, reliable and valid measurement for assessing college students' motivation and use of learning strategies.

4. Results

4.1 Background variable analyses

To describe the basic characteristics of the response group, the background and performance variables were described and compared between the two target groups. The differences concerning the background variables (gender, major of study, nationality, previous learning experience and self-ranking for academic performance) will be described.

It was noticed that more girls responded to the questionnaire than boys (50 versus 24; system missing 4), the number of the students from the two faculties is balanced (Law 39 versus Education 39), and students from China formed the largest group in the Asian international student body (n= 30, 66.6 %). The majority of the students (n= 71, 91.0%) that took part in this research have no experience abroad before enrolling into the present level of study. In addition, in the self-ranking for academic performance scale, 69.2% ranked themselves as middle, while 12.8% ranked high and 15.5% ranked low. Further analysis on the difference of background variables between the Asian international students and local Dutch students will be presented when comparing the differences between the two groups with respect to the scores on the motivation scales, learning and cognitive strategies scales and the resource management scales.

Table 4.1 gives the average scores on three scales, motivation, learning and cognitive strategies, and resource management strategies per background variables. Among the above-mentioned background variables, the major of study can be regarded as only an identification variable, and it would not be included in the further analyses. Since the majority of the students had no previous learning experience abroad, therefore, the abroad variable will also be ignored. The scale scores were calculated by summing up the subscale scores. Within the motivational scales, text anxiety was expected to be negatively related to performance level and time effectiveness; therefore, this variable was recoded before the calculation of motivational scale scores. That is to say the statistics reported represent the positive wording of the all the items, and the higher scores indicate greater levels of the construct.

Table 4.1 Mean score of the tested scales per background variables

Mean	Nation		Gender		Performance		
	Asian total	Dutch	Male	Female	Top	Mid dle	Low
Motivati on	9.83	10.58	9.94	10.23	11.10	10.07	9.38
Pearson Correlation	.28 (*)		.08		-.26		
Sig.	.01		.51		.02		
Learning strategies	14.91	14.84	14.52	15.25	15.06	14.86	15.21
Pearson Correlation	-.53		.15		.02		
Sig.	.65		.22		.84		
Resource management strategies	17.80	15.81	16.54	17.14	17.63	16.59	17.36
Pearson Correlation	-.29(*)		.10		-.02		
Sig.	.01		.39		.90		

* Correlation is significant at the 0.05 level.

Total number of valid cases ranging from 74 to 78

It appears from Table 4.1 that gender and ranking of academic performance were not significantly related to the predictor variables. At the same time the nationality variable was significantly correlated with the resource management scales (-.29). Although the motivation scale and learning and cognitive strategies scale were not significantly correlated with nationality directly, they were strongly correlated with the resource management scale and believed to have influence on that scale. In the following section, further analyses would be provided on the difference of motivation and learning approaches between Asian international and Dutch students.

4.2 Asian international and Dutch students' approaches to learn

As mentioned previously, descriptive statistics will be applied in the data analysis. The preliminary analysis of the samples was carried out using Cohen's *d* effect size. A value of 0 indicates that there is no difference between the groups. The small effect size is defined with $d=0.20$, $d=0.50$ as medium and $d=0.80$ as large (Cohen 1977). Independent sample t-test was applied to profile the significance of the differences between the international and Dutch students in three scales: motivational scale, learning and cognitive strategies and resource management strategies.

4.2.1 Motivational scale

The first scale is the motivational scale. Since there are no missing values within the two subscales – intrinsic motivation and test anxiety – therefore, there are totally 78 cases to be analysed. Table 4.2 presents the Means, Standard deviations and effect sizes for intrinsic motivation and text anxiety of Asian international and Dutch students.

Table 4.2 *Means, Standard deviation and effect sizes for motivational scale of Asian international and Dutch students*

Nationality		Intrinsic Motivation	Test anxiety
China	Mean	5.05	3.62
	SD	1.15	1.55
Indonesia	Mean	5.75	3.33
	SD	1.20	1.57
Asian other	Mean	6.17	2.67
	SD	.76	1.76
Asian Total	Mean	5.31	3.48
	SD	1.19	1.55
Dutch	Mean	5.12	2.55
	SD	.99	.96
Cohen's <i>d</i>		0.18	0.76
Sig.		0.22	0.001(*)
t-value		.77	3.26

* T-test is significant at the 0.01 level.

Number of valid cases Dutch=33; Asian=45

As showed in the table above, within the motivational scale, the best discriminator is text anxiety. The Asian-international students maintained significantly higher test anxiety (effect size $d=0.76$) than Dutch students in their learning process. However, before seeking for possible explanations, a categorization of test-anxious students would be provided.

According to Pintrich and colleagues, there are two different types of test-anxious students. The first type includes highly test-anxious students with good study skills who have no problems encoding and organizing the information, but rather they have a major problem in retrieval for tests, probably due to interference thoughts. The second type includes high test-anxious students with poor study habits who have problems in all stages of processing, both in learning the information and in retrieving it (Mckeachie, Pintrich, Lin, Smith, & Sharma 1990). To distinguish further the two types of text-anxious students, a correlation with organizational skills, time effectiveness and the extent of distraction during learning process is considered to be necessary. Since apparently, learning performance, such as test scores for both types of test-anxious students may appear to be low, however, for the first type of students, they may tend to acquire more information in a non-evaluation situation. Their good organization skills may be counter balanced by low time effectiveness and higher distraction. Therefore, a further analysis on test anxiety, organization skills, time effectiveness and distractions during learning process (see Table 4.3) could help with identifying the two types of test-anxious students within the two groups. The distraction variable considered being the response to q18 on the questionnaire (revised q77 on MSLQ), about "I often find that I am distracted by other things while studying for the courses."

Table 4.3 *Correlation Coefficient of Test anxiety, Organization Skills, Time Effectiveness and Distractions of Asian international and Dutch Students*

		Test anxiety	Organization	Time effectiveness	Distractions
Test anxiety	Dutch	1	.02	.13	.06
	Asian	1	-.35(*)	-.30(*)	.34(*)
Organization	Dutch	.02	1	-.09	-.32
	Asian	-.35(*)	1	-.12	-.10
Time effectiveness	Dutch	.13	-.09	1	-.35
	Asian	-.30(*)	-.12	1	-.32(*)
Distractions	Dutch	.06	-.32	-.35	1
	Asian	.34(*)	-.01	-.32(*)	1

* Correlation is significant at the 0.05 level.

** Correlation is significant at the 0.01 level.

As appears in the table above, owing to the limited amount of cases in each subgroup, the correlations among these scales are relatively low (restriction of range). But despite this the results differ remarkably between Dutch and Asian students. It is noticed that within the Dutch students group, all three variables, organization skills, time effectiveness and distraction, are positively correlated with test anxiety. That is to say, the Dutch students with higher test anxiety are more likely to apply organization skills when reviewing learning materials, they are also more time effective, and would be less likely distracted by other elements during learning process.

Within the group of Asian international students, the picture is totally different. As appears in Table 4.3, there are significant negative relationships between test anxiety and organization skills as well as time effectiveness, and the correlation with distraction variable is positive. All of these correlations of Asian international students are significantly higher than that of Dutch students. Comparing with Dutch students, the Asian international students with higher test anxiety showed a lack of organization skills, and are less time effective during learning. The findings indicate that Asian international students with higher test anxiety generally applied fewer organization skills and are more likely to be distracted during their learning process.

4.2.2 Cognitive and learning strategies scale

Among the three subscales listed in Table 4.4, there is one missing value within the organization and critical thinking scale in the Asian international students group. This brings about one case loss in the total 78 cases. Table 4.4 shows the results for three cognitive and learning strategies scales: elaboration, organization and critical thinking of all nationalities.

Table 4.4 Mean, Standard deviation and effect sizes for leaning and cognitive strategies of Asian international and Dutch students

Nationality		Elaboration	Organization	Critical thinking
China	Mean	5.32	5.27	4.75
	SD	1.17	1.36	1.14
Indonesia	Mean	4.58	5.46	4.63
	SD	1.93	1.21	1.37
Asia other	Mean	4.83	4.50	4.25
	SD	1.04	1.41	.35
Asian Total	Mean	5.09	5.28	4.69
	SD	1.41	1.31	1.17
Dutch	Mean	5.24	5.12	4.48
	SD	.88	.94	1.05
Cohen's <i>d</i>		-0.14	0.14	0.19
Sig.		.72	.27	.21
T-value		-.57	.62	.83

* T-test is significant at the 0.05 level.

** T-test is significant at the 0.01 level.

Number of valid cases Dutch= 33; Asian=44.

D and r are positive if the mean difference is in the predicted direction.

As appears from Table 4.4, there are no significant differences on elaboration, organization and critical thinking between the two groups. The highest difference in the cognitive and learning strategies scale is critical thinking of the students. The Asian international students applied critical thinking a bit more than Dutch students with the effect size $d=0.19$. That is to say, when presented to a new theory, interpretation or conclusion, international students would more likely make judgment if there were reasonable evidence as support.

4.2.3 Resource management strategies scale

As with the motivational and learning strategies data, independent sample t-test was utilized to determine whether there were significant differences between the Asian international and Dutch students in their preference for peer learning, help-seeking, effort management and time and environment management. Table 4.5 presents the mean, standard deviations, and effect size within this scale.

Table 4.5: Mean, Standard deviation and effect sizes for resource management strategies of Asian international and Dutch students

Nationality		Peer learning	Help-seeking	Effort management	Time & environment management
China	Mean	4.07	4.47	4.18	4.71
	SD	1.50	1.03	1.57	.89
Indonesia	Mean	4.42	4.75	5.58	3.83
	SD	1.00	1.23	1.06	1.24
Asian other	Mean	3.67	5.17	5.00	4.56
	SD	.29	1.61	1.80	.96
Asian Total	Mean	4.13	4.59	4.61	4.47
	SD	1.33	1.11	1.57	1.05
Dutch	Mean	3.14	4.11	4.02	4.56
	SD	1.31	1.00	1.44	.82
Cohen's d		0.79	0.47	0.41	-0.10
Sig.		.001(**)	.03(*)	.04(*)	.66
T-value		3.28	1.99	1.72	-.43

* T-test is significant at the 0.05 level.

** T-test is significant at the 0.01 level.

Number of valid cases Asian=45; Dutch=33.

D and r are positive if the mean difference is in the predicted direction.

As appears from Table 4.5 peer learning style preference has a quite high effect size of $d=0.79$, other scales worth noticing are help-seeking ($d =0.47$) and effort management ($d =0.41$). The Asian international students indicated a (much) higher preference for peer learning, help-seeking and effort management than Dutch students.

The subscale of effort management is mainly intended to test student's generally self-management in terms of effort, mood, self-talk, and self-reinforcement. According to the Pintrich and colleagues, the effort management scale is directly related to students' motivational patterns. The items selected from MSLQ (q48, q74) are intended to measure one of the most important strategies – mood-setting or mood maintenance. Emotional reactions towards dull and uninteresting learning tasks were asked in order to measure their efforts.

The scale of resource management strategies is most closely related to motivational beliefs, because most of the strategies could be seen as cognitive and metacognitive in nature, therefore, a correlation between the two scales is provided in the following part. Table 4.6 shows the mean, standard deviation, and correlation coefficient between motivational scale and effort management scale of the two groups.

Table 4.6: *Correlation coefficient between motivational scale and resource management scale of Asian international and Dutch students*

		Peer learning	Help-seeking	Effort management	Time& environment management
Intrinsic Motivation	Asian	-.03	.38(**)	.45(**)	-.02
	Dutch	.21	.11	.38(*)	.27
Test anxiety	Asian	.17	-.33(*)	-.35(*)	.13
	Dutch	.04	.03	.05	.38(*)

* Correlation is significant at the 0.05 level.

** Correlation is significant at the 0.01 level.

Number of valid cases Asian=45; Dutch=33.

It appears from the table above that both intrinsic motivation and test anxiety are significantly correlated with effort management and help-seeking within the Asian international students’ cohort. As noticed previously, the best discriminator within the motivational scale is test anxiety, and Asian international students generally have higher test anxiety than Dutch students. Therefore, we may assume that high test-anxious students within Asian international students would not persist on the task even if they regard the course material as dull and uninteresting because they are not motivated to learn by the “joy of learning”, and they only want to learn because they want to achieve better performances on the tests. At the same time, this performance goal of learning makes them less likely to seek help.

Although the effect size of the between group difference for time and study environment was very small, it is noticed that within the Dutch student group, it is significantly correlated with effort management and test anxiety. This finding can be regarded as a further support for the previous analysis that the high test-anxious Dutch students belong to type one – students with good learning habits, since they are able to apply self-regulated strategies such as organization, effort management in their learning process.

Another finding worth mentioning is the within group difference on the resource management scale of the Asian international students. Table 4.7 shows the mean, standard deviation, and effect size of the resource management scale of Chinese and Indonesian students.

Table 4.7: *Mean, standard deviation, and effect size of resource management scale between Chinese and Indonesian students*

Nationality		Peer learning	Help-seeking	Effort management	Time & environment management
China	Mean	4.07	4.47	4.18	4.71
	Std. Deviation	1.50	1.03	1.57	.89

Indonesia	Mean	4.42	4.75	5.58	3.83
	Std. Deviation	1.00	1.23	1.06	1.24
<i>d</i>	Cohen's	-0.33	-	-1.27	1.17
	Sig.	.37	.79	.002(**)	.03(*)
	T-value	-.90	-.70	-3.91	2.26

* T-value is significant at the 0.05 level.

** T-value is significant at the 0.01 level.

Number of valid cases, China=33, Indonesia=12.

D and r are positive if the mean difference is in the predicted direction.

From Table 4.7, the Indonesia students achieved higher scores on the subscale of effort management (effect size $d=-1.27$), peer learning (effect size $d=-0.33$), and help-seeking (effect size $d=-0.35$). Chinese students maintained significant better time and environment management skills than Indonesian students (effect size $d=1.17$). Only the difference with respect to effort management and time and environment management are significant.

5. Conclusions and Discussions

In the previous sections differences in three scales – motivation, cognitive and learning strategies and resource management strategies were presented for Asian international and Dutch students studying at the same level in the same university. Significant differences between the Asian international and Dutch students with respect to the subscales of test anxiety, critical thinking, peer learning, help-seeking and effort management were noticed. In this chapter, analysis for these differences will be provided from perspectives of teaching methods, learning habits etc.. Cultural factors will be avoided in explaining the differences.

5.1.1 Motivational scale

In the motivational scale, there is a significant difference in test anxiety. The finding is consistent with the discussion in the cross-culture research on test anxiety with TAI that was conducted among high school students (Schwarzer & Kim 1984). Schwarzar and Kim found in their research that comparing among German, American, Dutch, Hindi and Hungarian students, Korean students achieve the highest test anxiety (TAI: 50.18) and the Dutch students (TAI: 35.66) stayed at the lowest among all the groups. The difference was sourced back into cultural and family values as well as the educational system. However, in this study, we try to explain these differences by providing a categorization of types of test-anxious students.

Pintrich and colleagues identified two types of test-anxious students in their studies. The first type includes highly test-anxious student with good study skills, who have problems in retrieval for tests. The second type includes high test-anxious students with poor study habits who have problems in all stages of processing, both in learning the information and retrieving it. Since in the group of Dutch students, organization skills, time effectiveness and distraction, are positively correlated with test anxiety, therefore, we basically assume that the Dutch student with high test anxiety could be regarded as type one test-anxious student. They have good learning habits and have problems only in the test situations, and in nonevaluative situations, they would do fairly well because they have developed the knowledge of subject matter. However, their test anxiety could be reduced under proper training, which could help them with acquiring more learning skills, such as test taking strategies.

The findings also demonstrated that Asian international students with higher test anxiety generally applied fewer organization skills and are more likely to be distracted during their learning process. Therefore, they could be categorized into type two test-anxious students. Those students with poor study habits, who do poorly in nonevaluative situations as well as evaluative ones because they do not encode and organize the material well in the first place (Naveh-Benjamin, Mckeachi & Lin 1987). They need various improvement from both basic learning habits as well as further learning strategies. However, according to Pintrich and colleagues, this type of test-anxious students could benefit more from proper training on basic information processing skills, such as rehearsal, elaboration, organization and motivational strategies and self-management strategies. Their test anxiety and extent of distraction could be reduced along with significant increase of academic performance.

As for the other motivational subscales, there is no significant difference on intrinsic motivation between Asian international students and Dutch students. This finding is not consistent with the research finds of Eaton and Dembo (1997), who found significant differences in motivational beliefs between Asian American students and non-Asian students. Unlike Asian American students who are found being achievement motivated, most Asian international students in this research are motivated to learn in the same manner as their Dutch counterpart – the joy of learning. This finding reflects that by the level of Masters' study, with the development of cognitive and other academic related skills, both groups of students tend to pursuit achievement through their own efforts. They could actively engage into the learning process and regards learning as an enjoyable challenge, rather than ways to achieve values such as grades or praise.

To summarize the motivational scale, the findings showed that Dutch students are generally less concerned on the test scores, and have a less unpleasant feeling against exams, while their Asian counterparts generally hold an opposite attitudes toward exams. Students with high test anxiety within the two groups can be regarded separately as different types of test-anxious students. Although, it is assumed that differences of students' motivational beliefs could account for the discrepancies on the worry (or cognitive) components of test anxiety, we now tend to link test anxiety more to culture values such as the fear for failure. Based on the background variable that almost all of the Asian international students have no previous learning experience abroad, it is reasonable to assume that their present learning carried the hope or responsibility from their family, friends or even employer. Their present academic success would be vital for their future back home, since failure is not acceptable. Therefore, the value of fear of failure maybe results directly or indirectly into their high test anxiety.

5.1.2 Learning and cognitive strategies scale

As presented in the result chapter, the Asian international students applied critical thinking more than Dutch students. That is to say, when presented to a new theory, interpretation or conclusion, international students would more likely to make judgments if there was reasonable evidence as support. According to Pintrich and colleagues, the subscale of critical thinking mainly concerns student's application of strategies to (a) apply previous knowledge to new situations or (b) make critical evaluations of ideas. Moreover, there are three important educational elements that are believed to have conspicuous influence on critical thinking: (1) student discussion; (2) explicit emphasis on problem-solving procedures and methods; and (3) verbalization of methods and strategies to encourage development of metacognition (Mckeachie, Pintrich, Lin, Smith & Sharma, 1990). Therefore, traces on the

teaching methods or classroom processes in Asian countries may be quoted as one of the primary catalysts behind the Asian international students' preference towards critical thinking.

Owing to the fact that the class size in Asian countries is generally much larger than that in European countries (around 30), for most of the time the information flows are one-way delivery from professors. Therefore, Asian students have accustomed to the lectures, in which there are few communication or interaction activities such as class discussions. These learning habits would, therefore, influence the different aspects of critical thinking such as inference, recognition of assumption, deduction, interpretation and evaluation of arguments (Smith, 1977).

Another possible explanation from the perspective of teaching manners is the explicit emphasis on problem-solving procedures and methods. Let's take China as one example. It is common to find among the Chinese secondary students that science subjects such as mathematics, physics and chemistry generally occupied the majority of the students' learning time. Their learning habits of critical thinking were fostered when they are required to perform a series of critical thinking behaviours when finishing the large amount of assignments. These activities include memorizing, interpreting, applying, synthesizing and evaluating.

The impact of classroom process on critical thinking could also be applied when accounting the phenomenon that Asian international students are less likely to raise questions during the lectures and feel more comfortable to make inquiries after the lectures. However, their foreign instructors may feel troublesome since there are supposed to be more teacher-students communication during the lectures. In this study, the difference on critical thinking seem not to be very outstanding, it is possible because that all the students participated in this research are majoring in Arts, and they tended to consider in humanity manners rather than seeking numerated answers.

The effect size between scales on the other two subscales within the cognitive and learning strategies scale, elaboration and organization skills, are not significantly different between the two groups. However, we could read more information from the within group difference in the Asian international group at the elaboration scale.

As showed in the previous chapter, Chinese students showed a much higher preference of elaboration strategies than Indonesian students. Elaboration strategies are most helpful when students are storing information into long-term memory by building connections between items to be learned. They could assist the learners on complex learning tasks including paraphrasing and summarizing, as well as basic learning tasks. Similar with critical thinking, reasons for Chinese students' preference of elaboration strategies may be found in classroom teaching methods and related learning habits. Within the Chinese educational system, there is a strong emphasis on the "Unification of knowledge". The concept emphasizes knowledge structure and connections between prior knowledge and newly acquired information. Since it has long being one of the key elements of classroom instruction in China, the teaching manners and learning patterns are also centered on this concept, which may result in the students' preferences for elaboration strategies.

In the next section – resource management scale, difference of preferences of peer learning, help-seeking, effort management and time and environment management scales between Asian international students and Dutch students will be explained.

5.1.3 Resource management strategies scale

Asian international students demonstrated significant higher preferences for peer learning. The findings are consistent with the discussions and findings in relation to the Individual and Collective Construct between Asian and Australian students (Ramburuth & McCormick 2001). It is identified that there are clear differences in the cooperative strategies adopted by Asian students, and the individualistic strategies adopted by Australian students in their approaches to assignment writing. They also suggest that the adoption of strong collaborative approaches to learning by Asian students has been frequently linked to the influence of Confucian cultural values and its focus on the group rather than the individual.

The next subscale is help-seeking, with the Asian international students indicating a stronger preference for this scale than Dutch students. It is possible that the international students' higher preference for peer learning and help-seeking strategies may be influenced by the narrow scope of self-esteemed resources for help. Comparative speaking, the international students could maintain relatively a limited scope of learning resources because of the language barriers. The majority of the international students can not speak and read Dutch language, therefore, besides English course books, peers and instructors became the most two important channels of learning resources. At the same time, the extent to which the concept of "independence" may also influence students help-seeking behaviours.

As was showed in the previous chapter that there are greater within group differences in the scale of effort management within the Asian international group. The Indonesian students achieved much higher score than Chinese students. The Indonesian students in this research showed more persistence on the learning tasks, which is deemed as uninteresting and dull. Reasons from the educational systems may be quoted as possible explanations for the difference. The educational system in China is undergoing dramatic innovations during the past few years. The expanded scope for choice of learning tends to help the transformation of the many educational concepts and individual learning attitude. At the same time, the students' perception on learning may also be influenced by the broad educational guideline. The Chinese students, nowadays, generally are inclined to choose learning materials, which they consider as practical and interesting. They are also reluctant to learn unattractive materials even if it is only for the purposes for taking exams. Thus the joy of learning lies in the new concept of "I can choose to learn". However, the Indonesian educational system is still under great influence of traditional cultural perception that men are superior to women. Students, especially girls, were showed under limited choice of learning, therefore, the joy of learning still lies into the concept of "I can learn". Put it into another way, the Indonesian students that participated in this research tended to be more persistent in their learning because they cherish more on their present learning experiences.

The findings on the subscale of time and environment management tend to show that Chinese students generally manage the external factors of learning such as learning time, both at micro and macro level, and learning settings better than Indonesian students. They may have schedules for their learning times in the forms of short-term or long-term learning plans. Moreover, even the external learning environment of Chinese students tends to be more stable. The findings above tend to support the initial assumption that Asian international students maintained more self-regulated learning behaviours. The difference is that the Indonesian students regulated more on internal factors such as effort, and the Chinese students regulated better on external factors such as time and learning environment. By

identifying the learning preferences of different groups of student, suggestions for the two groups of students would be put forward in the last section of this chapter.

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